June 1985 Vol. I No. 11 U.S. $3 CDN. $3.95

Just for your Sanyo MBC-550, 555 and 775

soft sector™

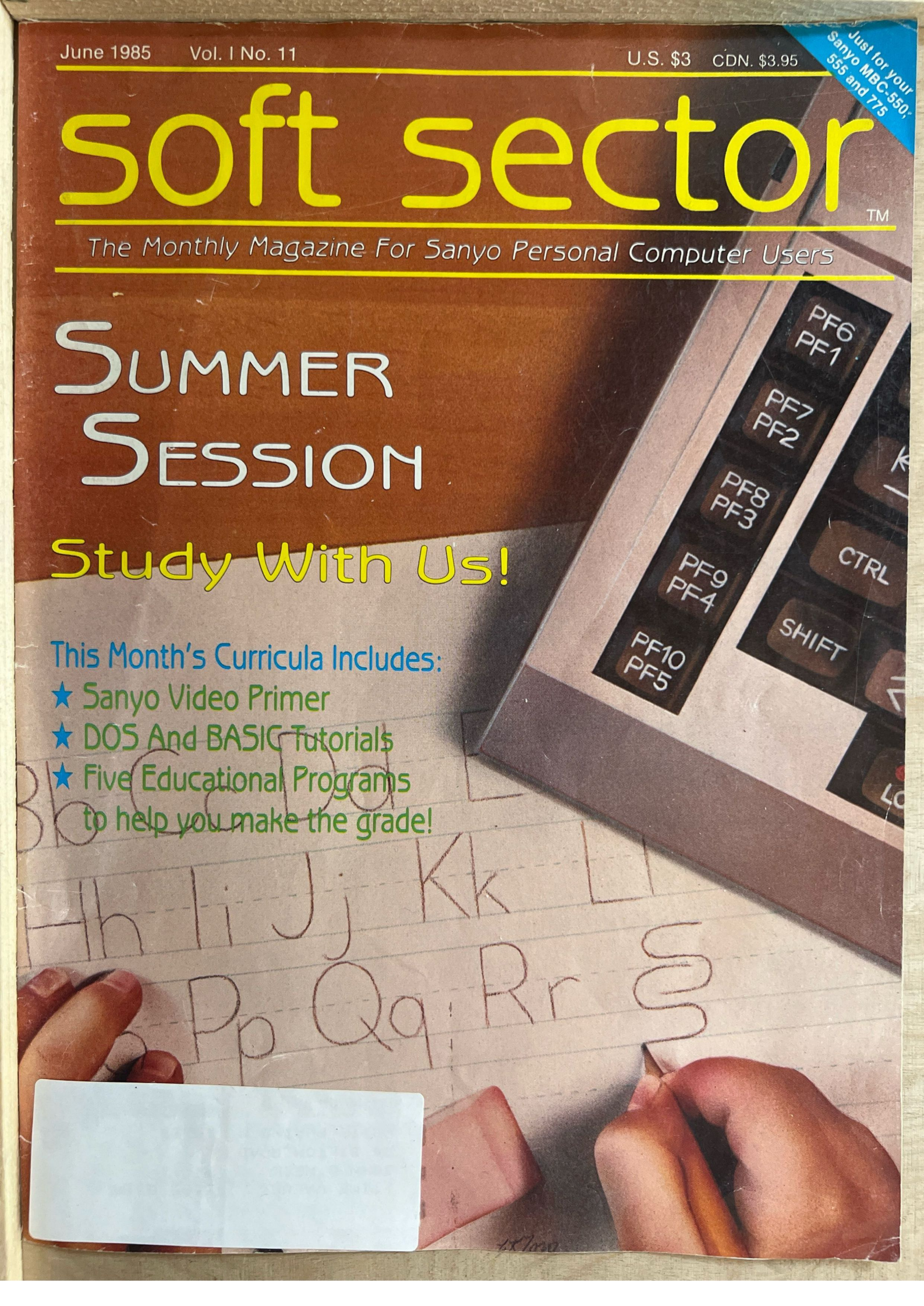
The Monthly Magazine For Sanyo Personal Computer Users

Summer Session

Study With Us!

This Month's Curricula Includes:

- ★ Sanyo Video Primer
- ★ DOS And BASIC Tutorials
- ★ Five Educational Programs to help you make the grade!

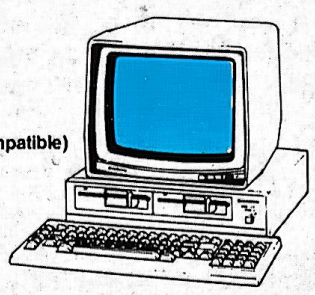


MICHTRON is the #1 software publisher for the Sanyo 550/555 with over 40 different titles and more coming every day! We have games, utilities, and serious programs for home and business. All were written specifically for the Sanyo 550/555. All programs are guaranteed to perform as advertised. Write now for your free catalog.

MichTron
576 S. Telegraph
Pontiac MI. 48053
Orders and Information
(313) 334-5700

SANYO ... The Least Expensive IBM-PC Compatible on the Market

RS-232 BOARD
Regular $99.95
Ours **$49.95**


(IBM Compatible)

VOLKS 12
300/1200 baud
external modem
$189.95

CLOCK/CALENDAR CARD
Automatic time and
date at boot up
$59.95

MULTI PERIPHERAL ADAPTER
Allows simultaneous
use of hard disk and
videoboard
$99.95

64K MEMORY UPGRADE
$19.95

CHECK OUT THESE LOW PRICES!!!

MONITORS

AMDEK

300G	12" Hi Res Green	$129
300A	12" Hi Res Amber	$149
310A	12" Hi Res Amber (IBM)	$169
Color 300	12" Composite	$269
Color 500	RGB/Composite	$389
Color 600	Hi Res RGB	$449
Color 700	Super Hi Res RGB	$539

ZENITH

ZVM 122	12" Hi Res Green	$89
ZVM 123	12" Hi Res Amber	$99
ZVM 124	12" Hi Res Amber (IBM)	$149
ZVM 131	13" RGB/Composite	$289
ZVM 133	13" Hi Res RGB	$389
ZVM 135	13" Hi Res RGB/Composite	$449
ZVM 136	13" Hi Res RGB	$649

TAXAN

105	12" Hi Res Amber	$99
115	12" Hi Res Green	$119
116	12" Hi Res Amber	$129
210	12" RGB/Composite	$269
220	12" RGB/Composite (IBM)	$269
410	12" Hi Res RGB	$349
420	12" Hi Res RGB (IBM)	$499
440	12" Super Hi Res RGB	$589

COMREX

CR 5500	12" Hi Res Green	$84
CR 5650	12" Hi Res Green	$109
CR 5650	12" Hi Res Amber	$109
CR 6500	13" Composite	$249
CR 6550	13" Composite	$229
CR 6600	13" RGB w/Free Apple Card	$199
CR 6700	13" Hi Res RGB	$449
CR 6800	13" Hi Res RGB	$399

Panasonic

TR 120	12" Hi Res Green	$159
TR 120	12" Hi Res Amber	$169
CT 1300D	13" RGB/Composite	$249
DT 5101	10" Dual Mode Composite	$299
DTH 103	10" Super Hi Res RGB	$549
DTM 140	14" Hi Res RGB	$599

PRINTERS

EPSON

LX 80 new, near letter quality		$269
RX 100	100cps. Friction/Tractor	$389
FX 80 Plus	160cps. Friction/Tractor	$369
FX 100 Plus	160cps. Friction/Tractor	$499
JX 80	160 cps. 7 color	Special
EQ 1500	200 cps. near letter quality	Special
Near Letter Quality board		Special
HI-80 Plotter		Special

Commodore

Commtier II	13 cps letter quality	$359
Commtier III	23 cps letter quality	$699
Commtier IV	36 cps letter quality	$799
Commtier 420	420 cps. near letter quality	Special

OKIDATA

Okimate 20	New, Color, NLQ	Special
182	New, 120 cps	$249
82A	120 cps	$299
83A	120 cps. wide carriage	$599
84P	200 cps. near letter quality	$689
92A	160 cps. near letter quality	$379
93P	200 cps. near letter quality	$589
Pacemark 2410	350 cps. NLQ	$1895

Panasonic

KXP-1090	96 cps draft	$199
KXP-1091	120 cps. near letter quality	$289
KXP-1092	180 cps. near letter quality	$449
KXP-1093	160 cps. near letter quality	$529
KXP-3151	22 cps letter quality	$499

SILVER-REED

EXP-400	13 cps letter quality	$259
EXP-500	14 cps letter quality	$349
EXP-550	19 cps letter quality	$429
EXP-770	31 cps letter quality	$799

star

SG-10	120 cps. near letter quality	$249
SG-15	120 cps. near letter quality	$389
SD-10	160 cps. near letter quality	$349
SD-15	160 cps. near letter quality	$489
SR-10	200 cps. near letter quality	$499
SR-15	200 cps. near letter quality	$649
Powertype	18 cps letter quality	$339

DISK DRIVES

MPI

51	SS/DD	$79
52	DS DD	$99

For Radio Shack IBM

TEAC

55B	hi. DS-DD	$129
55F	hi. DS/QD	$129

Shugart

SA-455	hi. DS DD	$139
10 meg w controller (IBM)		$799

CONTROL DATA

9409	DS/DD	$139
9409T	DS/QD	$159

MODEMS

ANCHOR AUTOMATION, INC

Volks 12	$189
New 300/1200 baud	$59
Volksmodem 300 baud	$129
Signalman Mark X	$259
Signalman Mark XII 300/1200	$10
Volksmodem Cables	

DISKETTES

X'LENT
Brand Diskettes

X'LENT SS/DD	Qty. 10	$1.99	ea.
Lifetime Warranty	Qty. 50	1.79	ea.
	Qty. 100	1.59	ea.
X'LENT DS/DD	Qty. 10	$2.49	ea.
Lifetime Warranty	Qty. 50	2.29	ea.
	Qty. 100	1.99	ea.
BULK DS/DD	Qty. 10	$1.99	ea.
Lifetime Warranty	Qty. 50	1.79	ea.
	Qty. 100	1.59	ea.
	Qty. 1000	1.29	ea.

SOFTWARE

MichTron

DS DOS Plus	$39
M-Disk	$29
MI-TERM	$69
Personal Money Mgr	$49
Mighty Mail	$89
Quick-N-Simple	$44
Soft Spool	$29
MI-KEY	$29
Picasso	$89
Freeze Frame	$34
Grafitti	$34
Master Graph	$79
Thunder Chief	$29
Cashman	$29
Major Motion	$24
Time Bandit	$34
Cornerman	$44
Others	Call

U.S. DIGITAL

Copy Link	$79
CPeMulator	$79
Personal Revenue	$49
General Ledger	Call
Accounts Receivable	Call
Accounts Payable	Call

OLYMPIC

Inventory	$74
Payroll	$74
General Ledger	$74
Accounts Receivable	$74
Accounts Payable	$74
Order Entry	$74
Postmaster II	$39
Money Analysis	$29
Finance Manager	$29
Appointment Book	$29
Touch Skills	$29
States & Capitals	$24
Body Systems	$29
Others	Call

STAR SOFTWARE SYSTEMS

$299
Accounting Partner
Includes Accounts Receivable, Invoicing, Accounts Payable, Purchase Orders, Payroll, and General Ledger

MasterCard VISA

*Price and availability subject to change without notice. MasterCard and Visa add 3%. All returned items must have a return authorization number (RMA) and are subject to a 15% restocking fee.

Hours: 9-6 Mon. - Sat. E.S.T.

THE COMPUTER WAREHOUSE

1407 DOWNTOWN BLVD., RALEIGH, N.C. 27603

ORDER TOLL FREE
800-334-8261
For Information & In N.C. 919-832-3479

soft sector

The Monthly Magazine for Sanyo Personal Computer Users

Vol. I, Issue 11 June 1985

Editor and Publisher
Lawrence C. Falk

Managing Editor T. Kevin Nickols
Associate Editor Belinda Kirby
Technical Editor Danny Humphress
Submissions Editor Jutta Kapfhammer
Editorial Associates Monica Dorth, Tamara Dunn
Consulting Editors Gordon Monnier, Courtney Noe
Contributing Editors Fred Blechman, Michael W. Ecker, Ph.D., Tim Purves, Brian M. Stone, Charlotte A. Stone
Editorial Assistants Jody Doyle, Wendy Falk, Debbie Hartley, Angela Kapfhammer, Suzanne Benish Kurowsky, Shirley Morgan
Technical Assistant Ed Ellers

Art Director Kevin Quiggins
Design Staff Heidi Maxedon, Jerry McKiernan,

Advertising Coordinator Doris Taylor (502) 228-4492
Advertising Assistant Debbie Baxter

FPSS, Ag. Publications Enterprises, Inc.
President
Lawrence C. Falk
Editorial Director James E. Reed
Creative Director Sally Gellhaus

General Manager Patricia H. Hirsch
Assistant General Manager for Finance Donna Shuck
Bookkeeper Diane Moore
Advertising Accounts Bev Taylor
Dealer Accounts Judy Quashnock
Administrative Assistant To The Publisher Marianne Booth
Manager of Public Relations Charles L. Springer
Director of Fulfillment Services Bonnie Shepard
Assistant Customer Service Manager Sandy Apple
Customer Service Representative Deidra Henry
Soft Sector on Disk Subscriptions Monica Wheat
Word Processor Manager Lynda Wilson
Research Assistants Judy Brashear, Laurie Falk, Judi Hutchinson, Sharon Smith
Dispatch Janice Eastburn
Production Assistant Melba Smith

SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users (ISSN 8755-7460) is published every month of the year by FPSS, Ag. Publications Enterprises, Inc., 9529 U.S. Highway 42, P.O. Box 385, Prospect, KY, 40059. Phone (502) 228-4492. **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users, SOFT SECTOR ON DISK** and the **SOFT SECTOR** logotypes are registered ® trademarks of FPSS, Ag.

Second class postage pending at Prospect, KY and additional offices. POSTMASTER: Send address changes to SOFT SECTOR, P.O. Box 385, Prospect, KY 40059. Forwarding Postage Guaranteed.

Entire contents copyright © 1985, by FPSS, Ag. **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users** is intended for the private use and pleasure of its subscribers and purchasers and reproduction by any means is prohibited. Use of information herein is for the single end use of purchasers and any other use is expressly prohibited. All programs herein are distributed in an "as is" basis, without warranty of any kind whatsoever.

Sanyo MBC-550/555 and 775 are registered ® trademarks of the Sanyo Business Systems Corp.

Subscriptions to **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users** are $28 per year in the United States. Canadian rates are U.S. $35. Surface mail to other countries is U.S. $64, air mail U.S. $85. All subscriptions begin with the next available issue.

Payment accepted by VISA, MasterCard, American Express, Cash, Check or Money Order in United States currency only.

For Soft Sector Advertising and Marketing office information, see Page 94.

CONTENTS

FEATURES

The 550 Series Video Primer/*Richard Kruse* 10
Comparing the two video systems

Making The Switch To The Video Board/*John Orlando III* 17
Adding a switch to the video board/monitor connection

■ **BASIC Training**/*Fred Blechman* 20
A lesson on Disk I/O

Mastering MS-DOS/*Danny Humphress* 25
The adventures of BATch Man

■ **The Electric Blackboard**/*Leonard Hyre* 36
Math practice without the chalk

■ **Challenge Of The Memory Match**/*J. Weaver Jr.* 44
An exciting game of visual recall

■ **Spider Graphics For Sanyo BASIC**/*David & Patti Neuendorf* 52
Routines simulating turtle graphics

■ **The Typing Teacher**/*Leonard Hyre* 62
Keyboard practice with a flair

■ **FirstBase — A Database Manager For Beginners**/*George M. Smart* 82
Taking those first steps up to the plate

DEPARTMENTS

Advertisers Index 94
Back Issue Order Form 83, 84
Business Sector/*Charlotte & Brian Stone* 28
Solutions to your applications problems
Corrections 75
Input/Output/*Tim Purves* 48
Answers to your technical questions
Letters To The Editor 6
Racksellers 93
Soft Soapbox/*Kevin Nickols* 8
News and Comments
Soft Talk 90
New products and services
Submitting Material 63
Subscription Information 84

REVIEWS

EZWTOTXT 74
Keys Please! 74
Query!² 80
RightWriter 78
Sanyo Host & Bulletin Board 76
Sanyo Text Dump 75
Time Bandit 79

Cover illustration© 1985 by Cynthia Torp

■ The small disk symbols appearing beside features and regular columns indicate that the program listings with those articles are on this month's SOFT SECTOR ON DISK, ready to LOAD and RUN. For full details, see the SOFT SECTOR ON DISK ad on Page 81.

— Advertisement —

Sanyo users get a NEW software deal . . .

NOW, Your Sanyo can Write Programs for You

Your computer is fantastically fast...once it knows what to do. You probably realize that a computer is the combination of hardware and software, working together smoothly, to give you what you want. Either one alone is useless. Software is really the key...the "mind" of a computer system. Every project or task you want to do requires a new specific software application to make your computer behave exactly the way you desire.

Of course you may be able to "force fit" your application into some existing canned package you have, but to really be flexible you need a separate program for your special purpose.

Until now, that meant you were forced to pay money for application software off the shelf, or if you could afford it, have it custom written for you, or if you were qualified, do it yourself...spending endless hours figuring it out and writing it. **Now, your computer can write individual application programs for you.** These programs are each separate, unique software programs that run in the standard BASIC on your computer.

Programs Without Programming

ICR FutureSoft has released the **NEW** and improved version of automatic program writers called **QUIKPRO+II**. It is a program that actually writes separate BASIC Programs for you...to do exactly **what you want to do.** And it's **simple and easy to use...you create a new program in minutes instead of hours.**

You can quickly generate a new program when you want it. You can generate thousands of different unique programs, each one standing alone as a complete program that runs in BASIC. Best of all, **you do not have to be a programmer to use it.** The QUIKPRO+II software becomes your personal programmer, waiting to do your work for you any time of day or night you choose to use it.

The All-In-One Program

The custom programs you can generate from the new QUIKPRO+II will let you perform Personal Filing, Fast Data Retrieval, including Changes, Deletions and Searches. You can selectively Print Custom Letters, all kinds of forms (if you have a printer). This new feature is called **Free Form Reporting**. You can even include calculations in the programs you create. QUIKPRO+II is perfect for creating inventory programs. You can use QUIKPRO+II to prepare letters and selectively address the letters to only certain people. And of course you can **SORT** your reports so that they print out information in the order that you want it, or print out only certain information. In fact, you can actually use QUIKPRO+II to create an easy to use Data management program or a simple spread sheet. You can do all of this and more with this All in One program...and the best part is that **you need no BASIC programming experience.**

How Does It Work?

You can do it simply by answering easy questions that appear on your screen. You won't have to learn any Computer commands or special Programming Languages. Instantly the QUIKPRO+II software instructs the computer to write efficient error free, BASIC Programs and puts the **Programs right onto your own disk, ready for you to use.**

The resulting custom program is truly a separate BASIC program. You can list it. You can modify it. You can customize it to your own liking. You can actually see what makes it tick

User Proven and Widely Used

QUIKPRO Software is **used worldwide in thousands of sites** by executives, schools, small businesses, universities and major companies like: Johns Hopkins University, Chicago State, U.S. Dept. of Agriculture, General Electric, Duracell International, Ford Motor Company, Westinghouse United Technologies, American Express, University of Pennsylvania, City of New York and many, many more.

Read What Users Say. . .

From a GENERAL CONTRACTOR/ CONSTRUCTION COMPANY owner:

*"The program seems to be good and I must compliment you on the documentation. It is the **best** of its kind that I have seen."*

From an INSURANCE AGENCY MANAGER:

"I would like to compliment you on an excellent...program."

From a HOBBIEST USER out in Oklahoma:

*"I thought I would drop a quick note about QUIKPRO. I have it running and it **will do** what I bought it for. I am very pleased with it..."*

This from a Vice-President of a Federal Savings & Loan:

*"In the past several weeks, I have used QUIKPRO software on four **different** programs. I am pleased with the results achieved so far and with your help over the telephone.*

Special Sanyo Deal

Sanyo users can get QUIKPRO+II direct at the introductory price of $74.50 plus shipping and handling with a special 10 day satisfaction guarantee from delivery. You can order now by calling TOLL FREE 24 hours daily 1-800-824-7888, ask for operator 441. In California call 1-800-852-7777, operator 441. Specify your Sanyo Model.
Send mail orders to:
ICR-FutureSoft, 1718 Kingsley Ave., P.O. Box 1446-SA, Orange Park, FL 32073
Dealer inquiries call (904) 269-1918
QUIKPRO+II is also available on IBM-PC, TRS-80, CP/M 8" and Osborne.

LETTERS TO THE EDITOR

WAVING THE FLAG

Editor:

In my last letter to you I mentioned that I found J. Weaver's outstanding *WizStar* program only toggled *WordStar* between normal and inverse video. However, when I ran it on a friend's version, it set the colors as it was intended to. At that time I suspected the problem was caused by different versions of *WordStar*.

What I have found is this: *WizStar* will only change *WordStar* colors *after* WSCOLOR.BAS has been run on WS.COM. Then, *WizStar* will have to reinstall the patches, even if it has installed the patches before.

In spite of this little idiosyncrasy, I think *WizStar* is great! Thank you, J. Weaver! Keep up the good work.

Orrin B. Iseminger
Colton, WA

Editor's Note: It was an oversight that this fact was not mentioned in the article. WSCOLOR.BAS *must be run on* WS.COM *first to set a flag for color and, since the copies of* WordStar *we used for testing the program already had color installed, this went undetected.*

BASIC SCRUTINY

Editor:

In the April issue, you ran an article by Fred Blechman entitled "Using READ/DATA Statements" ("BASIC Training," Page 20). I was surprised by the statement that Sanyo BASIC does not allow you to RESTORE to a particular line number. Both of the versions of Sanyo BASIC that I have allow this use of the RESTORE statement.

S.F. Helmase
Massena, NY

Editor's Note: You're absolutely right. The proper syntax is RESTORE <line number>. *If the line number is omitted, then the* DATA *statement having the smallest line number is processed.*

SHREWS ARE TOUGH TO TAME

Editor:

A couple of items in the April issue caught my eye. First of all, I'd like to know more about the patch to IO.SYS mentioned in the letter by Kurt Wolfe (Page 19). I tried several times to do exactly as the letter states, but all I get is "File not found" errors. Is there something Mr. Wolfe neglected to tell us about getting at hidden files?

My second question concerns the very brief tidbit in the article on changing the configuration of the TEAC 55 drives to bring the front panel LED on for functions other than just the last drive accessed (Page 89). Can you supply any further information on the jumpers mentioned by Mr. Kelty? I've got two 55F drives and don't really need to change anything, but the possibility intrigues me.

Dave Larson
Rochester, NY

Editor's Note: Kurt Wolfe has informed us that the code appearing in the original letter was in error; his correction appears in the letter below. With the new code, the patch to IO.SYS *to change the beep works as printed in the April issue — under MS-DOS 2.11. The* DEBUG.COM *program supplied with this version of DOS will read the hidden system files, whereas the one supplied with MS-DOS 1.25 will not.*

However, this is apparently not the only problem. We attempted to install the patch in the DOS 1.25 system files by revealing them with the SHOW.COM *program featured in the May issue on Page 47. The version of* IO.SYS *was the same in our test — Version 1.00 — but we were, nevertheless, unable to get the patch to work properly under MS-DOS 1.25.*

Perhaps the letter from John Kelty, also below, will be of more assistance on your other question.

Editor:

Regarding my letter in the April issue entitled "Taming Of The Shrew," it did not mention that COMMAND.COM must be copied to the new disk for the patch to work. Also, somehow the code was scrambled. Please print the following as the corrected code that should be entered:

```
B9 20 00 B0 35 34 08 E6 3A 88 C4
FE CC 75 FC E2 F4 C3
```

I apologize for any problems this has caused anyone.

Kurt R. Wolfe
Indianapolis, IN

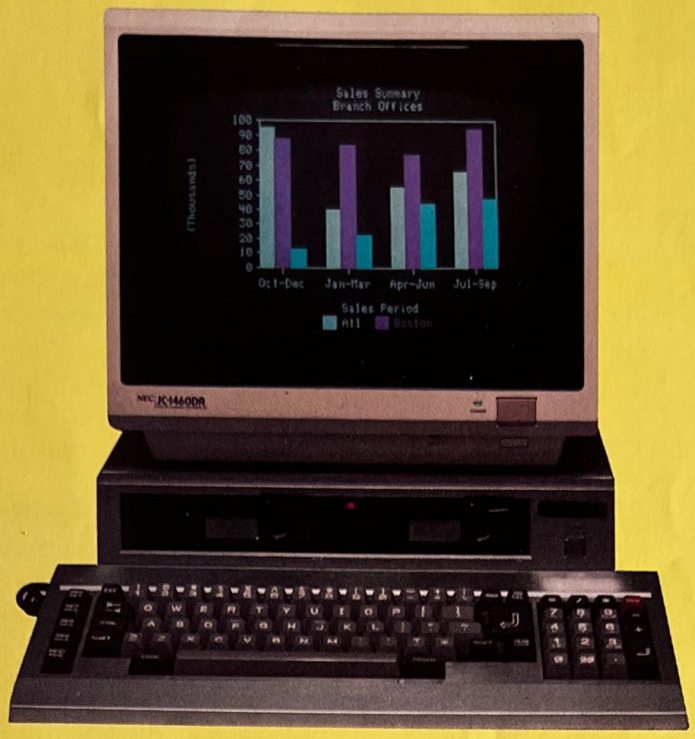
Editor:

As per your request, I looked at one of my drives (TEAC FD-55 series) and the jumper configuration is as follows:

> Jumpers placed at UR, SM, HS, PM, and the DS of your choice (DS0 for Drive A and DS1 for Drive B, etc.)

The key to having the drive indicator turn on like the Radio Shack Color Computer and the IBM PC is the UR selection. This causes the indicator to come on when the

Continued on page 68



Can You Name Every Dual-Drive Color PC That Runs Lotus 1,2,3 and Costs Under $1500?

Hints

- It comes with a 14" RGB monitor much like the 14" monitor that comes with the $2495 Leading Edge PC.
- It has dual 800K disk drives much like the $2495 Tandy 2000, but unlike the 2000 it will also read and write to 160K, 320K, and 360K IBM-PC formats.
- It's an 8088, MS-DOS system with 256K of RAM, but it comes with a better free software bundle than the 8-bit Kaypro including MS-DOS 2.11, HAGEN-DOS, DOS-TUTOR, WordStar 3.3, EasyWriter, Spell, Mail Track, PC File III, FILEBASE, CalcStar, games, graphics, utilities, and two BASIC languages.
- Although it's not PC-DOS compatible it will run hundreds of the same programs as the IBM including dBASE II, Multiplan, the PFS series, Lotus 1,2,3 and even Flight Simulator.
- During the dog days of summer computer sales, we've lowered the prices of both our color and monochrome systems. You can receive a free booklet on these systems by calling our machine at **1-800-FOR-A-FOX**, and leaving your name and address at the beep.

Your time is up the answer is:

Color Fox..... $1497

also

Fox Jr. ... $899 Silver Fox .. $1297

Scottsdale Systems, Ltd.
617 N. Scottsdale Rd. #B, Scottsdale, Az 85257
(602) 941-5856

The Silver Fox is sold exclusively by Scottsdale Systems Ltd., 617 N. Scottsdale Road #B, Scottsdale, AZ 85257. Trademarks: Silver Fox, HAGEN-DOS, and Datemate, Scottsdale Systems Ltd.; WordStar and CalcStar, Micropro International; MS-DOS, and Multiplan, Microsoft Corporation; FILEBASE, EWDP Software, Inc.; dBASE II, Ashton-Tate; IBM-PC, and IBM-PC DOS; International Business Machines Corporation. Ordering: **Telemarketing only**, Silver Fox price is for cash, F.O.B. Scottsdale, prices subject to change, product subject to limited supply. We accept purchase orders from Fortune 1000 companies and major universities with good credit - add 2% Visa, Mastercard add 3%, AZ residents add 6%. Returned merchandise subject to a 20% restocking fee. Personal or company checks take up to 3 weeks to clear. No COD's or APO's.

CAC LANGUAGE TUTORS

FOR THE SANYO 55X

Exciting educational games to learn foreign vocabulary. Ideal for children and adults. **Learn while playing.**

SPANISH
FRENCH
GERMAN
ITALIAN
PORTUGUESE

$39.95 Each

ALSO:

ENGLISH I for Spanish speaking
ENGLISH I for French speaking
ENGLISH I for Italian speaking
ENGLISH I for German speaking
ENGLISH I for Portuguese speaking

FRENCH I for Spanish speaking
FRENCH I for Italian speaking
FRENCH I for Portuguese speaking
FRENCH I for German speaking

ITALIAN I for Spanish speaking
ITALIAN I for Portuguese speaking
ITALIAN I for German speaking
ITALIAN I for French speaking

SPANISH I for French speaking
SPANISH I for Italian speaking
SPANISH I for German speaking
SPANISH I for Portuguese speaking

GERMAN I for Spanish speaking
GERMAN I for Italian speaking
GERMAN I for French speaking
GERMAN I for Portuguese speaking

PORTUGUESE I for Spanish speaking
PORTUGUESE I for French speaking
PORTUGUESE I for Italian speaking
PORTUGUESE I for German speaking

● DEALER INQUIRIES INVITED ●

CAC BULK DISKS

LIFETIME WARRANTY!

$1.35 ea. 5¼" SSDD Qty. 10

$1.55 ea. 5¼" DSDD Qty. 10

DS QUAD (bx of 10) $25

Best SANYO AUTHORIZED DEALER in New York Metropolitan area. CALL US for latest prices in computers, printers, supplies and software.

COMPUTER ALPHA CORPORATION
P.O. Box 182, Brooklyn, NY 11217
24 HR BBS: (718) 596-5802

VOICE: (718) 855-9029
Mon.-Fri, 10 am-5 pm; Sat., 9-noon.

TO ORDER: send M.O. or cashier check. Personal/company checks—allow 3 weeks for clearance. Add $3.50 For shipping. CODS: add $2. NYS residents add 8¼% sales tax.

PROGRAMMERS

We are now reviewing programs written for the **55X** and **Generic MS-DOS.** Call or write for information

SOFT SOAPBOX

Last month, if you recall, we left off while looking at a few of the results of our reader survey. While obviously interesting to those of us who put SOFT SECTOR together, I think many of the survey results should be of interest to everyone who uses a Sanyo computer. It lets us know what systems other users have, what their interests are, and what they want to see in a computer-specific magazine. For that reason, we will continue sketching our portrait of the typical SOFT SECTOR reader.

The vast majority of the survey respondents fall into the range of 26 to 45 years of age; there were only about 11 percent below the age of 25. Their occupations tend toward the engineer/technical and professional categories, and their household incomes generally run between $31,000 and $50,000 (it was somewhat heartening to see that none of the respondents were unemployed). The Sanyo is the first computer system for 44 percent of those responding, while 15 percent have another system at home and an additional 19 percent use a different system at work.

Business applications were clearly the programs that the greatest number of readers are interested in purchasing, with utility programs close behind and home applications pulling a close third. Games, terminal software and music programs are indicated as being in considerably less demand. The Video RAM Board was at the top of most hardware wish lists, followed by memory upgrades and acquiring a color monitor, which is not surprising when you recall last month's observation that 78 percent are using monochrome.

Frankly, the readers could not have been more kind to those of us who work on SOFT SECTOR, including the writers, the program authors and the reviewers. A whopping 97 percent of the respondents rated the magazine good to excellent, with by far the largest share on the most generous side. The product reviews fared well, with 56 percent claiming they were just right and 94 percent expressing their confidence in the reviewers' qualifications. Additionally — and this is a particularly pleasing fact for us — approaching 90 percent of those surveyed read each and every regular feature, each and every issue.

As for the advertising effectiveness of the magazine, 77 percent of the respondents stated that they have made purchases after seeing products advertised, 56 percent claim to be hesitant to purchase from a new advertiser, and 87 percent said they wait for an advertisement to appear two or more times before purchasing. Further, 80 percent of the readers stated that they usually or always wait to see a product reviewed in the magazine before making a purchase.

And now, with our survey analysis behind us, I would like to echo this issue's educational theme and leave you with a tip. SOFT SECTOR itself is the best educational purchase you will ever make regarding your Sanyo computer, and with our first anniversary approaching, many of you will want to get a jump on renewing your subscriptions. Well, would you believe there's a way to do it that's nearly effortless, as fast as light, and you don't even have to cut up your magazine?

Call 502-228-4492 and ask for Sandy. It's just that simple.

— Kevin Nickols

COME MEET THE SANYO CANADIAN PERSONAL COMPUTER DEALERS

ALBERTA

DEALER	CITY	PHONE
Computer Department of London Drugs Ltd.	Edmonton	(403)483-8444
CWC CompuWare Corp.	Edmonton	(403)432-0083
Computation	Edmonton	(403)434-0846
The Games Gang Family Computers	Edmonton	(403)435-4636
Information Connection	Edmonton	(403)432-7159
Lew Computers Ltd.	Grand Prairie	(403)538-3966
The Computershop of Calgary	Calgary	(403)230-1446
	Calgary	(403)243-4356
The Computer Connection	Calgary	(403)243-2490

BRITISH COLUMBIA

DEALER	CITY	PHONE
Computer Department of London Drugs Ltd.	Vancouver	(604)872-5177
	Vancouver	(604)669-7374
	N. Vancouver	(604)980-3661
	Surrey	(604)584-3281
	Richmond	(604)278-0788
Computer King	Richmond	(604)276-8271
	Surrey	(604)585-2330
	Prince George	(604)564-3778
Corporate Computers	Penticton	(604)493-7234
Clearbrook Software Group	Abbotsford	(604)853-9118
Coast Office Equipment Ltd.	Chilliwack	(604)792-9391
Dominion Business World Inc.	Kelowna	(604)860-5007
	Kamloops	(604)372-8444
Kootenay Office Outfitters Ltd.	Castlegar	(604)365-7454
	Cranbrook	(604)426-2241
London Drugs Ltd.	Richmond	(604)274-7122
Mitech Business Machines	Nelson	(604)352-5386
	Cranbrook	(604)489-4541
Minitronics of Canada Ltd.	Vancouver	(604)872-3225
Nanaimo Business Machines Ltd.	Nanaimo	(604)753-0985
Odyssey Computer Services	Victoria	(604)598-4342
Sanpiper Computer Systems Ltd.	Courtenay	(604)338-0121

MANITOBA

DEALER	CITY	PHONE
Micro-Mentor	Winnipeg	(204)837-5356

NEW BRUNSWICK

DEALER	CITY	PHONE
Atlantic On Line Systems Group	Fredericton	(506)457-1027
Bayco Business Products Ltd.	Bathurst	(506)548-4558

NEWFOUNDLAND

DEALER	CITY	PHONE
Technical Sales Ltd.	St. John's	(709)579-0044

NOVA SCOTIA

DEALER	CITY	PHONE
Basic Computer Sales	Halifax	(902)454-8344
Harbour City Stat. Ltd.	Dartmouth	(902)466-2101

ONTARIO

DEALER	CITY	PHONE
BAC Services Inc.	Vars	(613)835-3225
Burlington Business Computers	Burlington	(416)681-2664
C.P. & A.	Toronto	(416)925-9950
Chips Computers & Electronics Ltd.	Kingston	(613)542-4987
Compute-A-Sign	Scarborough	(416)752-4014
Computer Awareness	Oakville	(416)825-0583
Computer Beginnings Inc.	Windsor	(519)258-7966
Computer Junction	Toronto	(416)960-0300
	Waterloo	(519)886-2933
Computer Support	Peterborough	(705)745-6227
Computer Workshop Ltd.	Toronto	(416)366-6192
Computerized Business Systems	Willowdale	(416)225-1434
ConPute	Oshawa	(416)723-6500
Data Marketing	Kingston	(613)542-9450
E.T. Wilson O.E. Ltd.	Vanier	(613)746-3250
Furguson, James & Associates	Brantford	(519)759-4400
Guardian Data Product Inc.	Toronto	(416)665-4920
Hastings Data Systems	Belleville	(613)962-1551
Home Computer Centre	Kitchener	(519)745-6789
IBC Computers	Toronto	(416)860-1601
Information Connection	Ottawa	(613)234-1387
	Milton	(416)878-8869
	London	(519)672-9950
Legal-Ease Computer Systems Inc.	Downsview	(416)222-0436
Marketron	Toronto	(416)366-3168
Microland Business Systems	Toronto	(416)828-0866
	Mississauga	(416)823-4477
Microtech	Milton	(416)876-4988
	Georgetown	(416)846-4988
Micro Mart Computers Ltd.	Scarborough	(416)293-9444
Nelson Business Machines Ltd.	Burlington	(416)335-3300
	Waterloo	(519)653-6404
	St. Catherines	(416)688-2311
Neutron Computers Inc.	Guelph	(519)822-7691
Parts Galore Computer Centre	Toronto	(416)598-9874
RSG Runtime Systems Group	Whitby	(416)725-0583
Scitron Corp.	Mississauga	(416)624-2190
	Mississauga	(416)820-5810
	Toronto	(416)968-3011
	Brampton	(416)791-7266
	Scarborough	(416)288-1244
Spectra Colour Ltd.	Willowdale	(416)669-9942
Strictly Business Computers Inc.	Port Hope	(416)885-4597
Town & Country	London	(519)673-4930
Tron-Ex Canada Ltd.	Willowdale	(416)498-5494

QUEBEC

DEALER	CITY	PHONE
ATC Computer Products	Montreal	(514)331-7953
Becterm	Levis	(418)837-5894
Compuware	Montreal	(514)334-1088
	Pierresonde	(514)620-3627
John Chandioux	Ste. Anne de Belle Vue	(514)331-6100
Deltronic Solare Inc.	Valleyfield	(514)371-5720
Futur Byte	Montreal	(514)861-2831
	Montreal	(514)327-3121
	Longueuil	(514)677-5264
	Trois Rivieres	(819)373-7372
	Sherbrooke	(819)564-1202
Irisco	Ste. Foy	(418)681-0061
Les Enterprises P.A.de Grande Maison Inc.	Laval	(514)662-0341
Les Monde P.C.	Montreal	(514)481-0689
MDS	Montreal	(514)337-1730
Microcible	Montreal	(514)335-0885
Micropole	Repentigny	(514)581-1902
Microtechnie	Sillery	(418)842-8395
P.M.C.	St. Georges	(418)228-5504
R.E. Dumoulin Inc.	Montreal	(514)388-7942
Selectronic	Quebec City	(418)683-2525
	Anjou	(514)352-6200
Trinfec	Granby	(514)372-0625
Votech Electronique Inc.	Montreal	(514)738-8231

SASKATCHEWAN

DEALER	CITY	PHONE
Interactive Systems Inc.	Regina	(306)522-3828
Memory Lane Computers & Software Inc.	Saskatoon	(306)665-2707
United Office Machines	Prince Albert	(306)922-3333
Zycon Computing Ltd.	Regina	(306)949-7777

SANYO

For information please contact your local dealer or Sanyo Business Systems, 50 Beth Nealson Drive, Toronto, Ontario, Canada, Tel: (416)421-8344, TLX: 065-24383

Have you been asking, 'Just what is the Video RAM Board and why do I need one?' Let's cut the power on our machines awhile and study the two different systems.

The 550 Series Video Primer

By Richard Kruse

Sanyo's recent introduction of the new MBC-550VB video option (for the 550 series computers) has been received with much enthusiasm by the user community. As intended, the new board solves many of the "compatibility" problems, in a sort of brute-force fashion: it adds a second complete set of video generation hardware to the Sanyo computer, including a new 16K screen RAM area.

IBM compatibility is, indeed, greatly enhanced. Many previously inoperable programs now run flawlessly on the new system, and many more will operate with only minor patches (which Sanyo users are quickly developing).

Unfortunately, technically inquisitive Video RAM Board purchasers are greeted with Sanyo's now-infamous lack of documentation; there's an 11-page booklet containing (good) installation instructions, a few paragraphs on operational differences, and nothing else! (Oh, yes; a few pages are also provided covering GW-BASIC, but that's another article altogether.)

Those of us who have studied IBM's color video system have found that nearly all of the "old" knowledge transfers directly to the Sanyo implementation. In this article, I'll present some of the gory details for the edification and enlightenment of Sanyo owners who appreciate such information.

Now, knowledge of the inner workings of the video system is not, to be perfectly honest, of much importance to you Sanyo users who simply run *WordStar* (and now *1-2-3*). Software handles all of the details; no further understanding is required. Have you wondered, though, why 1) video operations run significantly faster with the new board, and why 2) you have more available memory when using it?

For the remainder of this article, I'm going to abbreviate the names of the two Sanyo video systems: "SVS" will refer to the original "Sanyo Video System," and "IVS" means the new "IBM-compatible Video System."

(Richard Kruse is an electronics design engineer specializing in microprocessor applications. He writes personal computer software as an avocation and, via his company, Prairie Physics, is responsible for a series of utility programs for the Sanyo. Richard welcomes comments and criticism regarding his articles and may be contacted at 6221 Woodlow Drive, Wichita, KS 67220.)

SVS Summary

The SVS has been adequately documented and discussed elsewhere, but I'll begin by summarizing its salient

OLYMPIC
EDUCATIONAL SOFTWARE

FUN WITH LEARNING

At last, a learning program designed especially for children 4 to 8 years of age. Watch your children spend hours learning about shapes and solving problems. Fun graphics, easy to use design. Have fun with learning.
$29.95

MATH CASTLE

Protect your castle from the attacks of the alien flying saucer using arithmetic. Answering the math problems correctly gives you the ammunition you need to save your castle and shoot down the enemy.
$29.95

MS-DOS COMPATIBLE BUSINESS SOFTWARE

OES INVENTORY

Designed for ease of use while still providing many features. Automatic reorder list, turnover, last date sold. Holds 1250-2800 accounts. Cash register function prints receipts, sales totals, salesperson's commission and 9 departments. Calculates LIFO, FIFO or Weighted Cost methods of inventory control. Computes Cost of Goods Sold. $99.95

OES ACCOUNTS RECEIVABLE

Complete billing system. Prints statements of account on computer or preprinted forms, ages accounts, finance rate chart, minimum payment chart. Holds up to 500 accounts. Complete audit trail is provided for safety. Integrates with the Order Entry and General Ledger programs to provide maximum efficiency and auto balance transfer. $99.95

OES ORDER ENTRY

Invoicing with computer or preprinted forms. Integrates with the Inventory and Receivable programs to provide a complete sales system. Sales Journal records daily sales, Cost of Goods Sold and the Gross Profit Margin. Automatic Back Order list. $99.95

OES GENERAL LEDGER

Income Statement and Balance Sheet. Holds 500 accounts. Accommodates one or several divisions or companies. Audit trail. Trial balance. Integrates with Accounts Receivable, Accounts Payable and Order Entry programs. Chart of Accounts. Easy to use and set up. $99.95

OES ACCOUNTS PAYABLE

Tracks one-time and recurring payables. Holds up to 500 accounts. Integrates with General Ledger. Prints checks; you set the format. An optional voucher system is included. Menu driven. $99.95

OES PAYROLL

Computes payroll for up to 100 employees. Printer required. Prints checks and employee pay slips. Computes local, state and federal taxes for any pay period. Salaried, hourly or piece work pay rates. Each employee has a file with employment information. $99.95

MONEY ANALYSIS

Two amortization calculations. Mortgage analysis. Interest on savings. Installment payments. Great for real estate investors or anyone who needs to calculate payments. Menu driven and easy to use. $39.95

POSTMASTER II

Complete mailing list. Easy to use. Up to 1600 names may be stored using a double drive system. Sorts by name or zip code. Formats labels for any size. Great for computer rolex cards. These and other features make this a great mailing program. $49.95

APPOINTMENT BOOK

Plan appointments from now until 1999 with this program. Excellent graphic calendar for each month. Print out a list of appointments for each day. Data disk included. Great for work or home use. $39.95

FINANCE MANAGER

Works like an accounts payable program, but for the home. Keeps track of items you want to include for your taxes. Program also comes with a graphic calculator and budget helper functions. $39.95

GAME SOFTWARE

TRIVIA MANIA

The hottest new trend in games has gone computer! Several different trivia disks are available. Fun for the whole family. $39.95

FLYBOY

With only 9 minutes of fuel left, you must land your aircraft safely. Graphic instrument panel. Pilot's license not required. $39.95

BACKGAMMON

Plays just like the real thing. Graphic playing cards make this a very colorful game. There is never a boring minute with Black Jack. $29.95

EDUCATIONAL SOFTWARE

BYTE BUSTERS

You are the "Byte Buster." Your mission is to clear all of the "Bytes" from the maze before the "Nybblers" put the bite on you. $29.95

BLACK JACK

A fun strategy game with several skill levels. Play the computer or another person. Watch the computer play itself to learn. $29.95

TOUCH SKILLS

A complete typing tutor for the beginning to intermediate typist. Typing drills, a graphic keyboard and game are included. $39.95

BODY SYSTEMS

Skeletal, respiratory, digestive and circulatory systems are covered. A quiz and review are included. Excellent graphics. $39.95

STATES & CAPITALS

Learn each of the fifty United States by their shape. Learn the capitals also. A fun program for learning about the U.S. $29.95

INCHWORM

A learning game for children, a strategy game for adults. Guide your long-growing inchworm through different learning situations. $29.95

SPELLING BEE

Learn to spell with your own list of words or use the computer's list of over 500 words of varying length. Make spelling fun to learn. $39.95

FLASH CARD

Flash Card will sharpen your math skills in addition, subtraction, multiplication & division. Solve problems right on the screen. $29.95

CALL: (206) 874-4044 OR (206) 952-4114

OLYMPIC
EDUCATIONAL SOFTWARE

1220 S. 356TH ST., SUITE 208W
P.O. BOX 3679
FEDERAL WAY, WA 98063

WE ACCEPT MASTERCARD, VISA, AND AMERICAN EXPRESS (INCLUDE CARD # AND EXPIRATION DATE), CHECK, COD, OR MONEY ORDER. ALL ORDERS ARE SHIPPED UPS, FREE OF CHARGE. PLEASE ALLOW 4 DAYS TO RECEIVE YOUR ORDER. WASHINGTON STATE RESIDENTS, PLEASE ADD 7.8% SALES TAX. DEALER INQUIRIES INVITED. PROGRAM SUBMISSIONS WELCOME.

features to form a basis for comparison with the new system.

Perhaps the most important detail to understand about the old SVS is that it is a pixel-oriented system, as opposed to a character-oriented system (more on that later). The SVS always operates in a "graphics" mode, in which software has complete control over each and every one of the 128,000 dots (pixels) on the screen.

Disregarding color for a moment, each screen pixel corresponds directly to one bit in a 16K reserved RAM area (16K equals 131,072 bits — a few bytes are "off the screen" at any given moment). Set the RAM bit to '1' and its pixel lights; reset it to '0' and the pixel switches off.

The greatest benefit of a pixel-oriented video system is its flexibility: there is no distinction between "graphics mode" and "character mode." Characters are simply drawn as specific groups of pixels (usually from patterns stored in ROM), and graphics objects can be freely intermixed at any screen position. Sanyo BASIC's SYMBOL command is direct and powerful evidence of this; it cheerfully "draws" fully-formed characters of any size, at any location, and even in different orientations.

And we can no longer disregard color! In your Sanyo you have not just one, but *three* memory bits assigned to each screen pixel, representing the additive primary colors green, red and blue. Thus it is that, given a color monitor, each pixel can take on any one of eight distinct colors (two to the third power) including, of course, black.

Some of you are probably doing a little head scratching right now over an apparent memory discrepancy. I've just stated (check it) that your machine allocates 48K of RAM for video use (three blocks, or "planes," of 16K each). But wait! Your Sanyo (and mine, too) clearly specifies only 16K so reserved in its sign-on message. What gives? It's this: Two of the three video planes (red and blue) do not come out of user memory, but are permanently addressed up in high memory, out of the way of all program use. Sanyo's software writers reasoned (correctly) that you really don't need to know about this extra memory, since it is not normally available for any other purpose.

Pixel-oriented video systems, unfortunately, do suffer from a common shortcoming: Ordinary alphanumeric characters have to be "assembled," dot by dot, by system software. This is a laborious process, requiring many, many instructions in the machine's BIOS routines. All of these instructions take time to execute. Multiply this time by three (because it's a color system), and add the effect of Sanyo's rather low clock rate; the inevitable result is *slow video speed.* As the man says, "There ain't no free lunch!"

Making matters even worse for our old SVS is Sanyo's effort at (nominal) IBM compatibility. Did you know that your SVS BIOS maintains, at all times, an internal "map" corresponding to what an IBM video screen "should" look like? That's 4K of usable memory down the drain, in addition to the 16K you already knew about (and even more processing time)!

So we have a "bottom line," and this is important: A pixel-oriented video system (your SVS) is a whiz at graphics applications, but a definite sluggard at everyday character manipulation. And it is not, as we shall see, the IBM way.

IVS News

The IBM way, and that of the new Sanyo IVS, lies in the opposite widely accepted video camp — character orientation. A computer with character-oriented video needs to write only a single (ASCII, usually) value into its video RAM area, and *sproing*, the desired character pops up on the screen. No more bit-diddling: hardware takes care of that and, of course, hardware is lightning fast.

Elimination of video bit-diddling also means that the complexity of the character-placement software in the BIOS is drastically reduced. So, as long as you're dealing strictly with alphanumeric characters, the whole system runs fast and lean.

Sanyo's new IVS offers these advantages, along with a couple of very beneficial side effects. Since we get a new, separate video RAM area (details

SYSTEMS PERIPHERALS CONSULTANTS

Presents

SPECIALS FOR

SANYO • PCjr • KAYPRO

(1100, 550, 775) (all models)

LOOK! COMPUTERS TOO!

SANYO Video Board OK **PCjr** **KAYPRO** **Hard Disk Drives For**

DISKIT 5.7 Mb. EXT. (1st come. . .)	$ 795
DISKIT 10.8 Mb. EXT.	$1295
DISKIT 10.8 Mb. INT. you do it EZ	$1195
SANYO 550-2XT (10 Mb. INT. System)	**$1895**
KAYPRO 2X + 10.8 Mb. formatted	**$2595**
KAYPRO 2/84 + 10.8 Mb. formatted	**$1995**
DISKIT 22 Mb. EXT.	$1995
DISKIT 34 Mb. EXT.	$2695
DISKIT 5R (5 Mb. Cartridge drive)	$1495
DISKIT 10R (10 Mb. Cartridge drive)	$2195
DISKIT 10 + 5R (Combo)	$2490
DISKIT 22 + 5R (Combo)	$2990
DISKIT 10 + 10R (Combo)	$2790
DISKIT 22 + 10R (Combo)	$3190
BIG! ULTRASTORE 70 Mb. (30 ms) FAST!	$3995
ULTRASTORE 140 Mb. (30 ms)	$4995

ONE YEAR WARRANTY ★ CASH DISCOUNTS

If you own or are about to purchase one of the above computers, call SPC first for the best prices on the entire system, including the Hard Disk Drive. SPC can provide a **COMPLETE SYSTEM** for substantially less than the total cost of the individual parts. This is a cooperative marketing effort so **DISTRIBUTOR INQUIRIES ARE WELCOME.** We support the widest variety of fixed and REMOVABLE drives available. We have what you need for **all Z80 and MSDOS Systems.**

Call now (619) 693-8611

SYSTEMS PERIPHERALS CONSULTANTS

9747 Business Park Avenue • San Diego, CA 92131

coming), there's no longer any need to reserve 16K of precious user memory for video use. Furthermore, since the video RAM contents are both writable *and readable*, the BIOS can dispense with its internal screen image. The result? Over 20K of additional program memory made available to you, the user!

I can almost hear the mumbling out there — that bit about "free lunches." Yes indeed, there's a catch. A couple of them, in fact.

You see, with both hardware and software "tuned" to character manipulation, graphics imaging is no longer simple and direct. No more automatic and independent access to each individual screen pixel!

The IBM solution (and that of Sanyo's IVS) is a compromise: It is to provide, via special complex hardware, several different video "modes." There are four "character" modes, which you can think of as the "native" modes for the new system. Then, in addition, there are three separate and distinct "graphics" modes, each with its own unique characteristics.

The expensive special hardware on the IVS board, fortunately, makes graphics operations nearly "transparent" to the user. And yes, you can still intermix graphics and text. Nonetheless, there is the extra hassle of having to switch modes.

In the IBM (and Sanyo) IVS implementation, there is an additional, and more serious, limitation. The IVS board contains a 16K block of RAM permanently allocated to video use. Period. We've already seen that, in Hi-Res (640-by-200) graphics terms, that's only enough memory for *one* video plane, assuming allocation of one bit per pixel. So? So IBM Hi-Res graphics mode allows only two states for each pixel: on or off. No color; monochrome only! You say you've seen some nifty color displays on an IBM PC? Look closely . . . they're done with 320-by-200 resolution, just half of your Sanyo's SVS full-color capability.

And thus we have a second bottom line: A character-oriented video system (i.e., the IVS) handles normal alphanumerics with aplomb, but takes a back seat in graphics-intensive use.

The IVS Solution

Great. One system compromises character-heavy performance, and the other provides less-than-spectacular graphics. What's a computer designer to do?

The answer, as solved by the folks at Sanyo, now seems obvious: Provide *both* systems! We may never learn whether or not it was originally planned this way, but a neat trick nonetheless. Want to get the best performance out of your word processor? Use the IVS. Kids clamoring to get at those great Hi-Res color games? No problem, just switch back to the old SVS. And either system can, in a pinch, run many of the other's programs! IBMers, eat your hearts out!

IVS Hardware Register Use

Non-techies may be excused at this point. What follows is strictly optional and for extra credit. Even so, it is only a brief summary of IVS details; those seeking more data should consult any of several reference works, some of which are listed at the end of the article.

At the heart of the IVS board is a 6845-type CRTC (CRT-Controller) device. This complex IC is the same as the one controlling the old SVS on the main PC board. It's used a little differently, but the principles are the same. The 6845 is addressed from the CPU via I/O port addresses 3D4H (register select) and 3D5H (data). This is the same device found on the IBM PC's color adapter board, and the port addresses are likewise identical (no coincidence, of course). The CRTC supervises the entire video-generation process. It accesses and refreshes the screen RAM and character-set EPROM, establishes scan timing and even maintains the cursor.

The IVS's screen RAM area (IBM uses the term "regen buffer") is, as already noted, 16K in size and starts at CPU address B8000H; all 16K are directly addressable. That jibes with IBM and, as with Big Blue, the 8088 CPU has priority access to the video RAM at all times. If access occurs during the active video portion of a scan line, you will see a short white streak in the display. Since scrolling is now accomplished through software, the first byte of the video RAM area will always appear at the upper-left screen position (assuming page zero is current).

Besides the two CRTC registers, several additional I/O addresses are

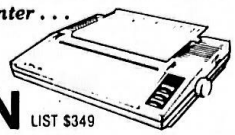
MidWest Micro-Peripherals

Gigantic Sale!

Epson - Brother - Star - Sanyo - Zenith

PRICE GUARANTEE
We at MidWest Micro guarantee that we can save you up to 49% or more on your purchase of new fully warranteed equipment and supplies. And we will still give you friendly, courteous service. Call today and Save With Confidence!

Don't spend a fortune to own the world's most popular printer . . .



NEW! **EPSON LX-80** LIST $349 YOUR PRICE **$269**

The new EPSON LX-80 prints smoothly and quietly at a speed of 100 cps. With the superb near letter quality mode and full graphic capabilities as standard, your correspondence will be letter perfect. The LX-80 comes complete with a parallel interface to quickly connect it to virtually all computers. There are 160 typestyles that are switch selectable and the LX-80 comes with EPSON'S full 1 year warranty. Friction feed is standard and an optional tractor feed is available. Let the EPSON LX-80 print your next business letter or report.

Complete EPSON Line . . .	List	Your Price
LX-80 (100 cps, NQL Mode, 80 Col.)	349	269
RX-100 (100 cps, 136 Col.)	895	399
FX-80+(160 cps, 80 Col. 2k Buffer)	699	389
FX-100+(160 cps, 136 Col, 2k Buffer)	999	589
LQ-1500 (200 cps, NLQ Mode, 136 Col.)	1395	$CALL$

brother

printer's give you all the features of a letter quality and more with . . .

NEW! **HR-15XL** ONLY **$379**

The HR-15XL gives you Daisywheel printing and added attractions such as text reprinting, red printing, attachable cut sheet feeder and the exclusive Brother keyboard attachment.

Complete BROTHER Line . . .	List	Your Price
HR-15XL (17 cps, 13.5" carriage, 3k Buffer)	$599	$379
HR-15 & HR-15XL Keyboard Attachment	200	$CALL$
HR-25 (23 cps, 16.5" carriage, 3k Buffer)	895	649
HR-35 (32 cps, 16.5" carriage, 7k Buffer	1245	899
Brother 2024 (160 cps, 24 pin head, NLQ Mode)	1495	999

Get great hard copy and near letter quality with. . .

star *Price too Low to Advertise!

SG-10 List $299

(Replaces the Gemini 10X)

The SG-10 gives you enough versatility for home or office use. It operates bi-directionally at 120 cps and includes many special features such as near letter quality printing, easy access format switches for a wide range of character modes, friction feed for single sheets and tractor feed for fanfold paper, and even hex dump. Another special feature is the IBM character sets available at the flip of a switch. You get all of this plus a 2k memory buffer and Star's full 1 year warranty at a price you can afford!

Complete STAR* Line . . . . $CALL$

Complete Systems

SANYO

Free Software

LOW AS $899

ZENITH SAVE up to 49% off!

Computer Systems

Get IBM compatibility, improved keyboard, faster processing speed, more memory capacity, free software, more expansion capability and unbelievable savings! Call today!

Prices subject to change and type errors

FREE CARD USE

Call Today!

Information – Ordering

1-800-423-8215

In Ohio 1-800-321-7731

CUSTOMER SERVICE (513) 663-4992

CASH PRICES: Cert. Check, Money Orders, VISA or MC
CODs (Add $5) AMEX (Add 4%) P.O.s (Add 5%)

MidWest Micro-Peripherals
(Division of Infotel, Inc.)
135 South Springfield St
St. Paris, Ohio 43072

decoded by the IVS board. They include:

1) "Mode-select" register 3D8H, six active bits, write only. Determines basic system operating mode. (Refer to Figure 1.)
2) "Color-select" register 3D9H, six active bits, write only. Determines border color in alpha modes, background color in Medium-Res graphics mode, and color palette for Medium-Res graphics mode. (Refer to Figure 2.)
3) "Status/Command" register 3DAH, four active bits, read/write. Contains video signal status information. (Refer to Figure 3.)

Actual operation of the CRTC, and use of the video RAM area, depends upon which of seven video "modes" happens to be in effect. I'll address the modes in two groups: First, the four "character" modes (BIOS modes 0 to 3), then the three "graphics" modes (BIOS modes 4 to 6).

Take a deep breath . . . .

IVS Use: Character Modes

In the IVS character modes (BIOS Modes 0 to 3), each character on the screen is represented by two adjacent bytes of video RAM. The first byte, always at an even memory location, contains the character code (ASCII/block-graphics per the chart in the old Sanyo manual). The second byte of each pair, always at an odd memory location, determines the "attributes" to be applied to said character (attribute details coming up).

A little arithmetic will show that, at two bytes per character, there is enough video RAM for either four or eight screens full of characters, in 80-by-25 or 40-by-25 modes respectively. By using BIOS INT10H functions, or by manipulating the CRTC registers directly (or using the SCREEN command in GW-BASIC, you can flip among these pages. Useful and interesting effects can be achieved this way, including fairly smooth animation.

BIOS Modes 0 and 1 are 40-by-25 alpha modes, in monochrome and color respectively. Modes 2 and 3 are 80-by-25 alpha, in monochrome and color. The main distinction between "monochrome" and "color" is found at the composite-video signal output; in color modes, this signal contains a color burst and color modulation, while in monochrome mode it does not. At the RGB output this distinction is meaningless; color information is always present.

IVS Character Attributes

Each character-mode attribute byte is decoded individually as per Figure 4. Essentially, bits zero to two select the "foreground" color (of the character), while bits four to six select the "background" color (surrounding the character, but within its eight-by-eight cell). Bit three, when set, will intensify the foreground color on monitors able to do so. Bit seven, when set, normally causes the character to blink, but may alternately act as an intensity bit for the background color. Thus, per the IBM specs, you can select one of 16 different character colors, on one of eight (normally) background colors, with or without blinking, for each character position on the screen.

IVS Use: Graphics Modes

The three remaining IVS modes (BIOS modes 4 to 6) cause the system to switch from character output to bit-mapped graphics output (IBM calls it "APA," or All Points Addressable). In these modes, the CRTC's "raster-address" lines are rerouted from the EPROM character-generator device to the refresh RAM. Thus, bytes written to the RAM no longer represent characters, but simply groups of pixels on the screen. Sound familiar? It should; these modes are, in fact, very similar to the normal operating mode of the standard SVS on the Sanyo's main board.

Of the three graphics modes, BIOS mode 4 is very seldom used. It's a Low-Res mode, with 160 pixels horizontally by 200 pixels vertically. IBM's ROMs don't support mode 4, and neither does the Sanyo VB BIOS.

BIOS Mode 5, on the other hand, is used extensively. Mode 5 generates medium-resolution graphics, with 320 pixels horizontally and 200 pixels vertically. Each of these pixels is represented by two adjacent bits in the video RAM area; thus a single scan line corresponds to 80 bytes, and the entire screen takes 16,000 bytes. Since two bits represent each Mode 5 pixel, four colors are allowed. One of the four can be any of 16, as set by bits zero to three of the color-select register; the remaining three must be selected from one of two pre-defined "palettes," which are in turn selected by bit five of the color-select register. I realize that this makes absolutely no sense upon first reading, but I urge you to experiment!

BIOS Mode 6 is IBM's highest resolution graphics mode, yielding 640 pixels horizontally and 200 pixels vertically. At one bit per pixel, this requires the entire 16K of video RAM. No color combinations can be generated, since each pixel can only be on or off. Mode 6 resolution is the same as that generated by the old SVS, but the old system can assign any of eight colors to any pixel.

Summary

There you have it: a brief tour into the inner sanctum of IBM-compatible video, Sanyo style. The new system, as you've seen, is at the same time complex and somewhat limited when compared to the three-plane, bit-mapped original Sanyo video system.

Which is better? Probably neither if your software will run on either system. If you want to run a program that *won't* work under the original system, try to get a demo on an IVS-equipped machine; there may be other, non-video compatibility problems. If the target program *does* run, there's really no choice: The Sanyo IVS is just what you need.

Suggested Reading

Motorola Microprocessors Data Manual, Motorola Semiconductor Products, Inc. (current revision). Complete data on 6845 CRTC. CRTC specs also available as a separate data sheet.

IBM-PC Technical Reference Manual, IBM Corp., (current revision). Full details on video hardware/software.

"POKEing Around in the IBM PC," by Hugh R. Howson, *BYTE Magazine*, November/December 1983. BIOS interrupt list, screen manipulation routines.

"Graphics on IBM's Personal Computer," by Ray Duncan, *Dr. Dobb's Journal*, #69, July 1982. Graphics manipulation routines.

Assembler for the IBM PC and PC-XT, by Peter Abel, Reston Publication Co., 1984, ISBN 0-8359-0153-X. Two chapters on screen processing.

8088 Assembler Language Programming: The IBM PC, by David C. Willen and Jeffrey I. Krantz, Howard W. Sams & Co. Inc., 1983, ISBN 0-672-22024-5. Chapter on screen adapters.

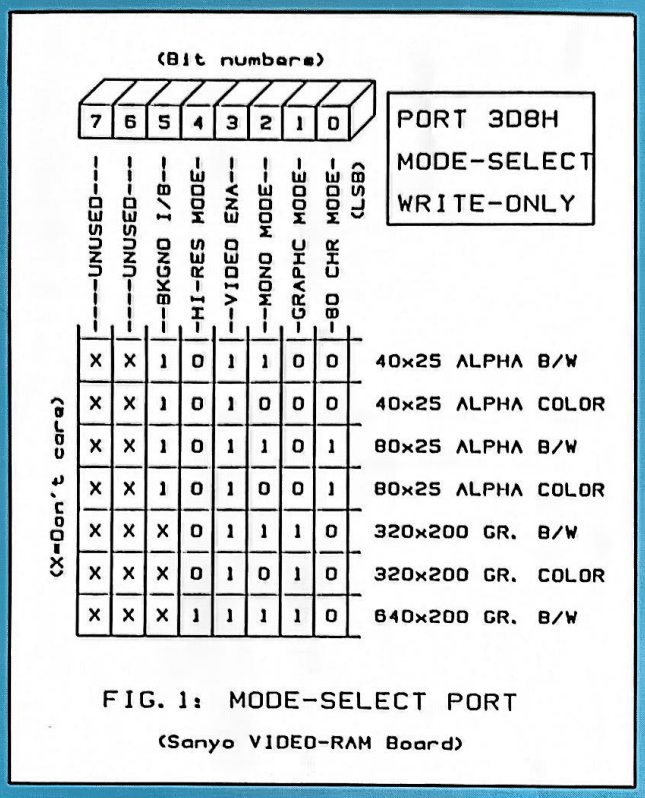


FIG. 1: MODE-SELECT PORT

(Sanyo VIDEO-RAM Board)

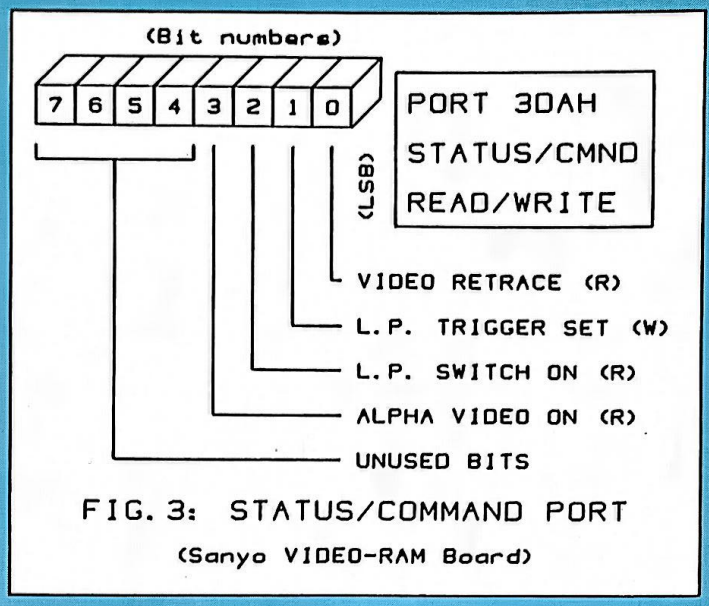


FIG. 3: STATUS/COMMAND PORT

(Sanyo VIDEO-RAM Board)

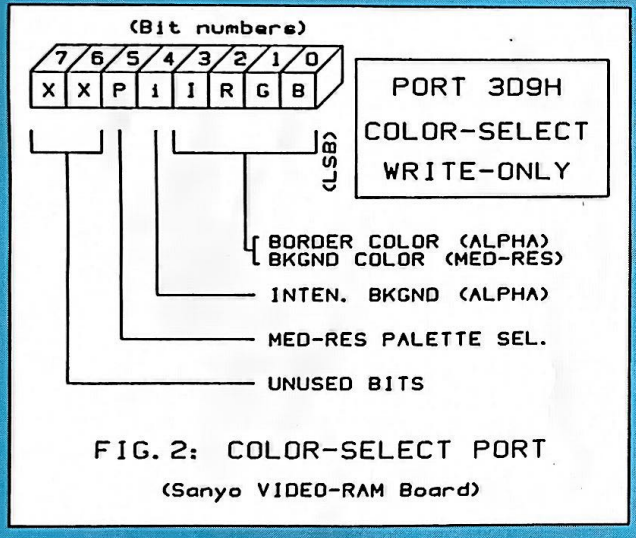


FIG. 2: COLOR-SELECT PORT

(Sanyo VIDEO-RAM Board)

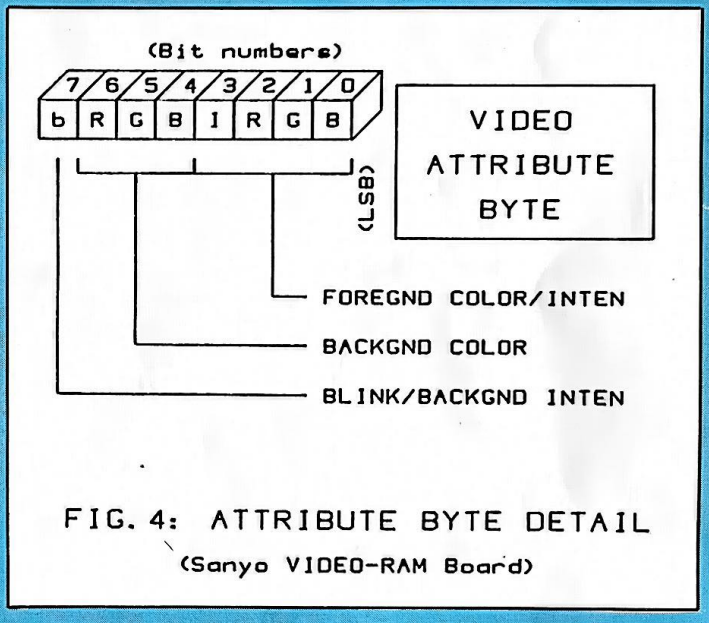


FIG. 4: ATTRIBUTE BYTE DETAIL

(Sanyo VIDEO-RAM Board)

COFORTH

EXTENDED CONCURRENT FORTH-79 FOR THE SANYO 550 SERIES
Disk, manual and shipping.....$40.00
(Minnesota residents, add 6% sales tax)

FORTH programming language is interactive, structured, up to 30 times faster than BASIC, yet affords direct access to hardware. Ideal for graphics, games, robotics..Easily extendable, serves as a tool for constructing other languages. Built-in extensions to support SANYO's unique features:

- Hi-res graphics
- Screen print
- MS-DOS file support
- FORTH loading from text files
- INCLUDES sample GAME programs
- Full featured editor (automatically invoked on compile errors)
- Save compiled applications to COM files
- Concurrency and scheduling
- AND A WHOLE LOT MORE

ALSO UNDER DEVELOPEMENT: SANYO MIDI BOARD with MIDI software (for music synthesizer control) WRITE FOR DETAILS.

SEND CHECK, MONEY ORDER OR INQUIRIES TO:

BLUEWATER
2537 Colfax Avenue South
Minneapolis, Minnesota 55405
(612) 377-7369

Public Domain Software for YOUR Sanyo
10 Volumes....$5/volume Send $5 for Directory Disk!

1 Meg. Memory Upgrade Plans [Soldering Required!]
Uses 4164 Rams. Expandable to 960K.....$15.00
4164 Low Power 150nS RAMS.....$ 2.50

"The MISSING LINK" -- Memory Expansion Card for Sanyo
Add either 256K or 512K RAM - Plugs in - No soldering
Built in Real Time Clock - Soft Video Feature
Complete with instalation software and instructions
MISSING LINK with 256K RAM.....$299
with 512K RAM.....$349

DSDD Nashua Diskettes [bulk packed] each only...$1.79

Please add $3 shipping and handling per order!
Call our 24 Modem Line the 'Bit Bucket' (316)343-8028
Datalog (voice) (316)342-6782
Box 1401, Emporia, KS 66801-1401

SPEED RACER

by Bruce Hansen

The checkered flag drops as your pulse rises in this lively new arcade game. The road twists to the horizon on the 3-D panorama that sets the stage for the most exciting race the Sanyo has ever seen! Vie for time as you speed through the curves at incredible speeds. Step through the gears to stay ahead of the pack, but step lively since some will stop at nothing to see the end of the race, or the end of you! Four challenging raceways, complete with obstacles and colorful 3-D scenery, put your skills to the test in this Turbo™ type game.

128K Sanyo 550/555 (joystick recommended) . . . $34.95

DRIVE TIMER PLUS

by Paul McLeod

This trio of utilities is designed to protect and enhance the use of your disk drives and files. Since proper drive speed is so vital to file operation, this package features TIMER: a program that graphically displays any disk drive's motor speed and logs the results to disk. ENCODE protects your files from unauthorized access through the use of personal passwords. FASTFILE puts a multitude of disk commands (such as Move, Delete, Redate, Print, etc.) at your fingertips in simple, menu form. In one package MichTron brings you maintenance, protection, and convenience.

128K Sanyo 550/555 required $24.95

TIME BANDIT

by Bill Dunlevy and Harry Lafnear

Action, adventure, and art unite in TIME BANDIT! Explore the realms of Time as you battle the Evil Guardians. Collect the Treasures of the Ages and unlock the doors to escape. But hurry Bandit, the Techno patrol is hot on your trail! Visit over TWENTY colorful adventure sites (in ANY order!) with over 15 levels in each. THAT'S OVER 300 VARIATIONS! TWO can even play at the same time—on their OWN windows! Two-player mode requries a joystick. This machine language epic will dazzle the fussiest graphic gawker and challenge the quickest arcade player. Beautiful scrolling landscapes, character animation, amazing sound, and HUNDREDS OF SCREENS—The conquest of Time and Space awaits you . . .

128K Sanyo 550/555 (joystick recommended) $39.95

TYPE RIGHT

by Ken Olson

Whether you want to end the fumbling of hunt-and-peck typing, or simply improve your speed and accuracy TYPE RIGHT is the answer. It teaches touch-typing in a way that ends computer anxiety and keyboard fears. Written in MACHINE LANGUAGE to be fast and accurate, TYPE RIGHT never misses a key. Color graphics and large letters make TYPE RIGHT perfect for any age! Learn at your own pace; repeat a previous drill, or forge ahead to sample paragraphs. TYPE RIGHT offers friendly, menu-driven use, and keeps track of everyone's personal progress.

128K Sanyo 550/555 required $34.95

CHECKMATE

by W. Fink & R. Vanderburgh

Chess lovers—if you're ready for the ultimate challenge, CHECKMATE is the answer! From the opening play you can see the computer "thinking" as it contemplates each move. This classic game has a level of play for every degree of skill: from novice, to tournament caliber for the expert! Superb graphics put you right across the table from the Master. And if you can't decide on a move, ask the computer to suggest one! You can even switch sides and save games to disk for future reference or replay. Match wits with the computer in the most challenging strategy game of all!

256K Sanyo 550/555 required $39.95

MUDPIES

by Philip McKenzie and Jeff Sorenson

Take an exciting trip to the big-top with this colorful arcade game. Slinging mudpies at frenzied clowns may seem like fun, but the clowns don't agree! They'll throw things back and try to catch you! Avoid danger, ward off the angry clowns, and grab a shake and fries at the same time in this unique game. Numerous challenge rounds, special prizes, 6 different screens, and special mud slinging rounds make this a great addition to anyone's game collection.

128K Sanyo 550/555 (joystick recommended $34.95

GRAPHPAC

by Tim Purves

Announcing a COMPLETE graphics interface for Lattice "C"™, DeSmet "C"™, Turbo Pascal™, and machine language. Add color, graphics, and even sound to languages that previously lacked any Sanyo graphic routines! GRAPHPAC gives the programmer a powerful set of graphic commands, with line, curve, and polygon drawing, text print, sine and cosine, joystick read, sound, paint, full Get and Put stamp functions, and many more. GRAPHPAC opens avenues for everything from technical illustrations to video games! It even uses stamps made on the PICASSO drawing system! Free your imagination from the language barrier; let GRAPHPAC put you in the picture!

Requres Sanyo 550/555 and Lattice "C"™, DeSmet "C"™, Turbo Pascal™, or machine language assembler $49.95

MichTron

576 S. Telegraph Pontiac MI. 48053

Orders and Information (313) 334-5700

After you got your new Video RAM Board, it didn't take long to get fed up with switching the monitor cables, did it? Well, this project will let you sit back in your chair and stay there.

Making The Switch To The Video Board

By John Orlando III

(John Orlando III is the director of engineering at Pocono Hospital in East Stroudsburg, Pa., as well as the owner of Effective Technologies, a consulting clinical engineering firm. He uses Sanyo computers at work, at home and in his business. John may be contacted at 1111 Mica Circle, Bethlehem, PA 18017; 215-691-2794.)

By now users of the Sanyo MBC-550 series computers equipped with Video RAM Boards have found that constantly moving their monitor cables is quite a pain. With the standard configurations, you cannot get away from it. There is a way, however to put a switch between the computer and monitor to allow an effortless switch between the video board system and the standard one. This article will show you how to do it.

Monochrome Monitors

For those of us who "only" have a monochrome composite monitor, our problems are solved with a trip to any well-stocked department store with a good VCR, TV and antenna department or a Radio Shack store. For about $15 total, you can pick up a 75 ohm external VCR/TV or A/B antenna selector switch to do your dirty work with the flick of a switch. With this you will also need three adapters, specifically "female RCA-type jack to male 'F' connector," to allow you to use your present RCA-type video cables with your new switch. The last item necessary will be one or two additional video cables (RCA-type), for a grand total of three cables necessary for you to complete your switch installation.

Now it is time to go home and install your new switch. First attach your three adapters to the three female 'F' connectors on your antenna switch. Plug one end of a video cable into your monitor and the other into the "common" connector of your switch. The common connector is usually labled "Output" or "TV." Now connect the other video cables between the two video outputs on your computer and the two antenna inputs of your new switch (usually labled 'A' and 'B' or TV Antenna and Cable TV).

Boot up your computer with either the standard operating system or the video board system and check your screen for the result. When viewing the wrong output (i.e., the wrong switch position), your screen will be full of garbage; the correct position should show the normal sign-on messages. It is a good time now to label your switch with the proper mode setting before rebooting the computer with your other operating system to check the proper operation of that switch position.

Now you no longer have to get up from your chair and reach around the hot and dusty back of your monitor or computer. Just insert a disk, flip the switch and reset!

Radio Shack Shopping List:

1	#15-1254 VCR/TV/FM Switch	$4.95
	or	
1	#15-1249 VCR/TV/FM Switch (nicer)	$6.95
3	#278-255 Adapter ($1.19 each)	$3.57
1	#15-1539 VCR Video/Audio Cable(s) (see text)	$3.99

RGB Monitors

For those of you who are using an RGB video monitor, the cable swap problem is not as easy to solve. First, there is no "standard" RGB connector available — everyone uses something different — nor is there a "standard" RGB signal protocol!

If you happen to own a Zenith ZVM-131, 133, 135 or 136 monitor, or any other monitor that uses a female DB25 input jack (like your Sanyo serial port), you are in luck.

By now you have two separate and different RGB monitor cables that come from the back of your Sanyo MBC-550/555 up to your RGB monitor. In order to switch between the two, we need only add a switch and an additional cable. The cost of this hardware fix is expensive, however — about $100 over our $15 fix for monochrome monitors!

The switch we will use is a standard RS-232C selector switch, which is normally used to switch between two serial devices (modem and printer, for example), connected to one serial port (like our Sanyo's). I have selected this switch because it comes assembled, requires no technical experience and possesses the correct connectors.

Installation requires us to connect each of our present RGB cables to the Device 1 and Device 2 female 25-pin jacks on the switch box. Then we must get a "standard" RS-232 straight connector cable (with male DB25 plugs on each end) to connect the switch (common or output jack) to our RGB monitor.

We can now boot our system and check the operation under both modes. If you find that the screen rolls and tears in both modes, we must make one "minor" modification inside the switch itself. You see, RS-232 signals use Pin 1 as ground. Our normal Sanyo RGB output uses Pin 1 as Negative Horizontal Input. Some RS-232 switches ground Pin 1 on all three connectors, and hence do not switch Pin 1. For our use as an RGB video monitor input switch, this method is unacceptable. It shorts our signal to ground, which causes improper operation in both the standard and video board modes.

The fix, however, is quite simple. First open up the RS-232 switch and find all the wires that go to Pin 1 of the three DB25 connectors. It is easy to find since the wire usually loops from one connector to the next, bypassing the actual switch, before it is attached to the frame (ground) of the switch itself. Next locate the wires that lead from Pin 25 of all three connectors to the switch. We must cut the wires off Pin 25 close to the three DB25 connectors. Cut the wires that lead from Pin 1 of the three DB25 connectors as far away from the connector as possible, being sure to sever any connection made between each connector and/or ground. Now splice the wires you removed from Pin 25 of each connector to the wires you cut from Pin 1 of the corresponding connector.

We have essentially moved the switching from Pin 25, where it was not needed, to Pin 1, where it belongs for our purposes. Please note that I have chosen Pin 25 because it is not used in standard RS-232 connections (and it is easy to find on the end of the connector). Hence, we could still use our switch for its originally intended purpose.

Well, that's all there is to the "fix." Button up your selector switch box and retest your system. All should be fine without you ever having to cast a shadow across the back of your monitor again.

Important: Be sure to purchase an RS-232 connector cable *and* data switch box that carries *all 25 lines*! Some cheap cables and switches only use the "standard" pins (1 through 8 plus 20). We need pins 14 through 16 also for proper operation.

Table 1: DB25 Connector

Pin #	RS-232	Sanyo RGB	SanyoVB RGB
1	Ground	Negative Horizontal	NC
2	Transmit	NC	Positive Horizontal
3	Receive	NC	NC
4	Request to Send	NC	Positive Vertical
5	Clear to Send	Green Input	Green Input
6	Data Set Ready	Blue Input	Blue Input
7	Signal Ground	Red Input	Red Input
8	Data Carrier Detect	NC	NC
14	NC	Negative Vertical	NC
15	NC	NC	IBM Intensity
16	NC	Ground	Ground
20	Data Terminal Ready	NC	NC

Note: NC means "not connected." Pins not listed above are usually not used.

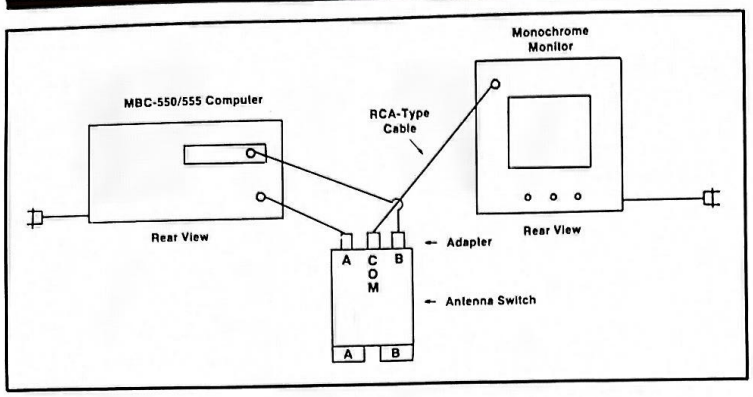


Figure 1: Configuration For Monochrome Monitors

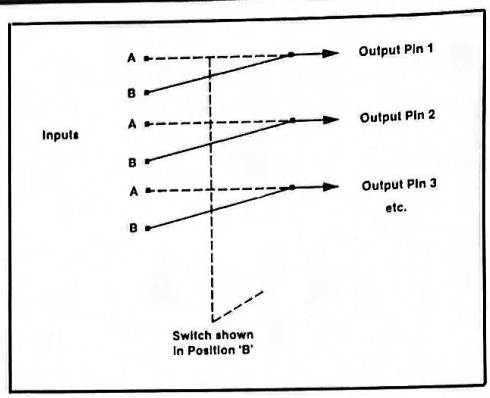


Figure 3: RS-232 Switch

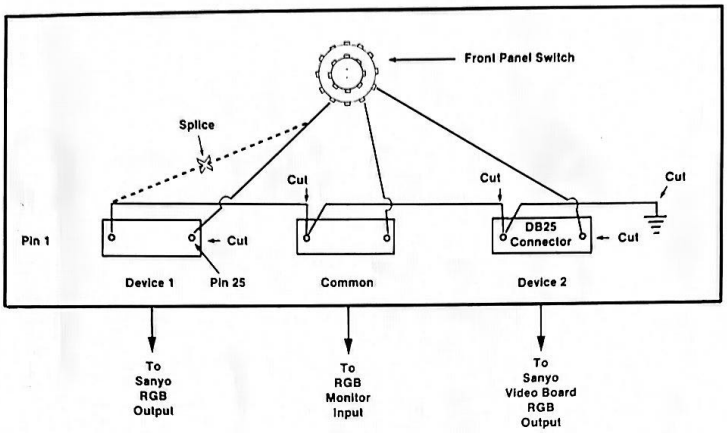


Figure 2: RS-232 Switchbox Modification For RGB Monitors

We take the BYTE out of high prices!

Comp-U-Type

Accessories

PANASONIC CT 1300D COLOR MONITOR	279.00
RS-232C PORT	59.00
ANCHOR MARK XII	259.00
ANCHOR MARK X	129.00
6' KEYBOARD EXTENDER	9.95
10 DS/DD DISKETTES	21.95
WORDSTAR TEMPLATE	9.95
BASIC REFERENCE MANUAL	35.00
DATASTAR REFERENCE	30.00
REPORTSTAR REF. MANUAL	45.00
MS-DOS REFERENCE MANUAL	49.00
128K RAM EXPANSION	49.00
COMPUSERVE KIT	31.95

SPECIALS

VIDEO RAM BOARD	165.00
FLIGHT SIMULATOR WITH PATCH DISK	45.00
TEAC 360K DISK DRIVE	129.00
DUST COVER SET WITH 2 YEAR GUARANTEE	29.95
TILT AND SWIVEL STAND FOR MONITOR	19.95

Software

PAYROLL OR INVENTORY	69.95
ACCOUNTS PAYABLE OR RECEIVABLE	69.95
GENERAL LEDGER	69.95
THUNDER CHIEF	29.95
SOFT SPOOL	29.95
SOLITAIRE	34.95
MI-TERM MODEM SOFTWARE	59.00
DS-DOS	49.95
MAJOR MOTION	24.95
TIME BANDIT	34.95

Visa, MC add 3%. Personal checks allow 10-15 days to clear. No CODs. In MD add 5% tax. Add 3% for shipping, $3.00 minimum. Send for free Sanyo catalog.

Comp-U-Type
P.O. Box 777, Millersville, MD 21108
(301)987-4272

"Free" Sanyo Bulletin Board
(313) 348-4479
24 Hours 7 days a week

Orders and Information
(313) 348-4477

MICHIGAN SOFTWARE DISTRIBUTORS INC.
43345 GRAND RIVER
NOVI, MICHIGAN 48050

MICHIGAN SOFTWARE:

	PFkey/Function Key Utility	9.95
NEW	PFkey/Video Board Version	9.95
	Keyword/Keyboard Utility	9.95
	Screen Print/Prints Screen to Printer	29.95
	Save Screen/Saves Screen to Disk	24.95
	Character Gen/Generates your own Characters	24.95
	SDT/Error Free Program Transfer via Modem	29.95
	Recipe File/Stores & Retrieves your Recipes	39.95
	U.S. Capitals & States/Geography Lesson	29.95
	Sanyo Host & BBS/Host Program with Free BBS	179.95
NEW	X Modem Patch/For Sanyo Host & BBS	29.95
NEW	Speed Screen/Speeds Up Video Display for 2.11 only	24.95
NEW	Basic Enhanced/Adds Commands such as Sound; Search; Line Editor & H Copy for 2.11 only	34.95

CUSTOM SANYO DUST COVERS
Grey Leather "Like" — Two Year Warranty

CRT 36 + CPU or CRT 30 + CPU/ONE Unit	29.95
Keyboard/Only	12.00
CPU/Only	19.95
Made to Order: any Computer or Printer	Call $

We also sell software from
Michtron, U.S. Digital, TLS Inc.
"UN Q Basic Protected Programs"
$ Free....call for details

"VISIT OUR RETAIL STORE"

• VISA, MASTERCARD, AMERICAN EXPRESS, C.O.D., CHECK •

• DEALER INQUIRIES INVITED •

Prices subject to change

Add 3.00 shipping and handling

Continuing in our training series on BASIC, we look this month at the more common disk operations.

A Lesson On Disk I/O

By Fred Blechman

Soft Sector Contributing Editor

(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners. This article is based on material from a book by the author, Sanyo MBC-550/555 Beginner/Intermediate Guide, *now available from Blechman Enterprises, 7217 Bernadine Ave., Canoga Park, CA 91307; (818) 346-7024.)*

In the very early microcomputer days, programs and data were "saved" on punched tape. A mechanical device literally punched holes in long, thin paper tape using a binary code to represent individual characters. The program was "loaded" by running the tape back through a "tape reader" that sensed the hole patterns and converted this information to character codes for the computer to process.

Very quickly, magnetic tape came onto the scene in the form of audio cassettes. Signals were processed by various techniques to save and load programs and data. However, with the exception of some specialized tape drives not used by most microcomputer owners, these tapes operated "serially" — that is, information was "written" or "read" in sequence. If you wanted a program at the middle of the tape, you would either have to wait until the tape got there, or "fast forward," using a digital rotation counter, to approximately (hopefully) where the program was on the tape.

While usable, cassette recording had definite disadvantages in "transfer rate" (speed of character transmission) and reliability. Errors were common.

"Floppy disks" — thin, magnetically-coated plastic disks spinning inside a protective jacket — could hold relatively large amounts of data organized in a fashion that allowed fast and accurate access. Their popularity for microcomputers increased, causing the prices for the disk drives and the disks themselves to drop in price — leading to even greater popularity.

Many inexpensive home computers still use tape devices, but they are definitely limiting in many ways. Sanyo wisely chose to include a single 5¼-inch disk drive (the most popular size, and the same size as used on the IBM PC) on the MBC-550, and two such drives on the 555. The "soft sector" (single index hole) disks are "formatted" (magnetically coded) as "single-sided, double-density," each holding about 160K (160 thousand characters) of usable data.

The more recent Sanyo MBC-550-2 and 555-2 come with double-sided disk drives, providing 320K or 360K of storage on each disk, depending on whether they are formatted with eight or nine sectors per track.

Presently available from outside vendors and from Sanyo are "hard disks," a far more sophisticated (and expensive) system for storing and

retrieving larger amounts of data at higher speeds.

This article will describe the process of using floppy disks, called "Disk I/O" (which means Disk Input/Output). All disk-oriented commands will be mentioned, but the emphasis will be on the more common disk operations.

Routine Disk Operations

Earlier in this series we covered the most common disk operations: SAVEing, LOADing, KILLing and MERGEing programs, and obtaining an abbreviated disk directory with FILES. These are straightforward and relatively trouble free.

The MS-DOS mode is used for many special functions, such as copying files, making backup disks and getting a detailed disk directory. These functions are not directly available in BASIC and are not covered in this article.

Disk Files

One of the most popular advantages of disks is their ability to quickly and easily store and retrieve "files" as well as programs. Files are simply data organized in a fashion that you can "write" on a disk so you can "read" it back later as needed.

Sequential Files

The disk stores this information as either "sequential files" or "random files." Sequential files, as the name implies, are composed of "data sets" arranged so that one group follows another in sequence. In reading a sequential file, the computer starts at the beginning of the named file and reads each data set, starting at the first data set, one after another. If you are looking for a data set halfway through the file, you will have to wait until the computer gets to that point in the file. Although the computer moves quickly through a file, looking for data at the end of a long file can be very time inefficient.

However, sequential files are relatively easy to program and use disk space efficiently, so more data can usually be put on a disk with sequential files than random files.

Random Files

Random files are not random at all. They are very well organized so that each main group of data is held in a "record" which contains various defined "fields." Each record is assigned a sequential number, but the computer can be instructed to access any record number directly, without going through all previous records, thus the misnomer "random." A much more descriptive name would be "direct file" or "numbered file." However, each record is assigned space in advance, whether used or not, so random files can be very inefficient in the use of disk space.

Random files take special commands and planning. They are normally the domain of advanced programmers, so they are not covered here. Just in case you run across them, however, here are the keywords associated with random files, and a brief description:

OPEN "R",#1,"filename" — Opens a random file.

FIELD/AS — Assigns a buffer number in memory and defines field names and lengths.

PUT and GET — Writes-reads a record to or from the named disk file.

LOC — Next record number to be used.

LSET and RSET — Left-justifies or right-justifies the specified field.

MKS$, MKI$, MKD$ — Makes single-precision, integer and double-precision numbers into strings.

CVS$, CVI$, CVD$ — Converts strings to single-precision, integer or double-precision numbers.

Sequential File Programming

Now that we've dispensed with random files, we'll turn our attention exclusively to initializing and using sequential files.

Initializing A File

A disk file must be OPENed and CLOSEd. A letter must be used to indicate if the sequential file is for output (O) to the disk or input (I) from the disk. (An R is used when a random file is being specified.) This letter is followed by a #1, #2, or #3 to indicate the "buffer number" (temporary storage area).

Unless otherwise assigned when going to BASIC from MS-DOS, three buffer areas are automatically provided, each with a capacity of 432 bytes. Additional buffers can be provided when going from MS-DOS to BASIC by using the command BASIC /F:X (where uppercase F is required, and 'X' is the number of buffers, up to 15.) Normally, the three "automatic" buffers are all you'll need.

The filename follows, with up to eight characters (starting with a letter) and an extension of three characters following a dot (.XXX). The listings that follow will show examples of how sequential files are OPENed.

Storing DATA

In the last article in this series we had a fairly long program, the *Sanyo Matchmaker*. The DATA contained the names, ages, sex and interests of "members." While entering information in DATA statements is easy, it does take some understanding of program line numbers and formatting the DATA statement, so it is not appropriate for many "users." In other words, to use the popular phrase, this method is not "user friendly."

Most users would prefer to simply answer questions on the screen to input data, instead of having to create program DATA statements. Once the information is entered, it is saved in a

disk file by the program. When the information is needed, it is read back from the disk. As far as users are concerned, disk use is automatic — they only answer screen prompts.

However, there are severe penalties to pay in using a sequential disk file if the information needs to be added, changed or alphabetized. That's why I avoid disk files and much prefer loading an array from DATA statements, which stay resident in the program, and then work from the arrays.

This can use a lot of memory, with both array and DATA space consumed within the program. For a long data file, the best combination of efficient memory usage with relative ease of modifying data is to load an array from a disk file, and then work from the arrays.

The disk file may be generated initially from DATA statements or keyboard response to screen prompts. Once the data is in the arrays, it can be modified as necessary and then written back out to the disk.

Advanced disk programming provides means for doing all sorts of useful things in sequential disk files, but these techniques are beyond the intention of this article. If you have a need for more than "plain vanilla" disk files, get one of the many books on the subject of disk files for more elegant applications.

PRINTing Or WRITEing To The Disk

Using either data input from the keyboard or from DATA statements, you can "output" to the disk with either the PRINT# or WRITE# statements. Actually, the PRINT# statement is far more in evidence in disk programming, but the lesser known WRITE# statement (not available on some microcomputers) is easier and safer to use.

Without going into the details, Sanyo BASIC is very fussy about data "types" (numeric and string) and the PRINT# statement requires special care in defining the differences. Also, when using data sets consisting of several items with one PRINT#, Sanyo BASIC will come up with a "Type Mismatch" Error unless each item in the data set is separated from another with a comma enclosed in quotes. The WRITE# statement does this automatically. My advice is to always use WRITE# in place of PRINT#.

A Simple Example

Suppose you had a fairly large inventory of items for sale and you wanted to assess their price and availability for invoicing and inventory control. You could keep this information in a large array. A disk file could load the array, and then save the contents of the array after changes to an updated disk file.

Listing 1 provides a means of initially generating the disk file. Only 20 items are shown out of what could be hundreds. Listing 2 then loads this data from the disk into a program array, thus eliminating the space DATA statements would take in user memory.

No attempt is made here to provide a complete inventory program, which would include updating quantities on hand, adding or deleting items, establishing and monitoring reorder levels, printing an invoice, updating the disk file and such. These listings are just to illustrate the generation and use of a disk file. Also, no error trapping is used.

Generating The Original File

Listing 1 generates the original data file, using DATA statements. For a "friendlier" program, you could use screen INPUT statements for each of the items: Stock Number, Description, Inventory On Hand, Cost, and Suggested Retail Price. However, this "friendly" program can turn on you and become a real headache if you make mistakes during screen entry, unless error-trapping and correction routines are provided. The "loader program" shown in Listing 1 is simple to follow and easy to change.

Line 20 OPENs Buffer #1 to accept an output, with DATFILE1.DAT assigned as the filename. Line 30 READs five DATA elements (conveniently arranged in one DATA line) and assigns them to the variables A, N$, B, C and D in that order, with Line 40 then PRINTing these values on the screen (in five zones, due to the commas) so you can see what's going on.

Line 50 WRITEs the values of these variables to Buffer #1. They are not actually written to the disk until either the 432 character buffer gets full or the disk file is CLOSEd.

Line 60 checks to see if the end of the file has been reached by looking for "ZZZ" as the value for N$. You'll see this in the last DATA statement. If so, the program CLOSEs the file and ends. If not, Line 70 sends the program back to Line 30 for another READ.

Watch this program operate and you'll notice many READs and PRINTs before the screen display hesitates as the disk drive starts and the buffer contents are transferred to the OPEN disk file.

Changes to the data are just a matter of retyping or editing the appropriate DATA line. New items can be added numerically between existing line numbers, and old items removed by just deleting that DATA line. Be sure the last DATA line contains a "ZZZ" (or whatever terminator you decide to use).

Using The Data File

Listing 2 is the program that uses the data file created by Listing 1. It is a "kernel" program, since it has not been "fleshed out" to include all the features in the menu and many additional functions a real-world inventory program would require. For example, there is no attempt to line up decimal points or provide two decimal places for each number. There is no provision to enter reorder levels, or even update existing levels. The purpose of this program is to illustrate disk input into an array for further program processing.

Line 10 clears the screen and eliminates the zero positions of all arrays. Line 20 DIMensions a two-dimension numerical INV-array and a single-dimension string DES$-array. These were DIMensioned for 100 rows, but could be made as large as memory will allow. Certainly, several hundred is no problem even with the 41K allowed for BASIC programs.

Line 30 OPENs Buffer #1 (it could also be #2 or #3) to input the DAT FILE1.DAT disk file when asked. Line 40 sets up a FOR/NEXT loop equal in size to the maximum array size. Line 50 INPUTs, to Buffer #1, the first five items in the OPEN disk data file. These must be identical in type and sequence to the INPUT statement — numerical, string, numerical, numerical, numerical — or you'll get a "Type Mismatch" Error! This is very important.

When the buffer fills (or the file is CLOSEd), these variables are then assigned to the specified array locations in memory.

Line 60 checks for the end of the file, looking for the "ZZZ." If it finds it, the file is CLOSEd and the program jumps to the menu section. Otherwise, Line 70 PRINTs, on the screen, the values coming in from the disk. You'll notice a hesitation as the full buffer dumps to memory.

By now you should be able to follow the rest of this program without any

additional explanation. Figure 1 shows a screen printout of menu selection one.

Other Sequential Disk File Commands

There are 10 other commands available for use with sequential disk files, but they are used rarely or only for advanced programming. They are briefly described as follows:

EOF — Detects the end of a file.

LOC — The number of records (128 bytes per record) used since the file was opened. This is used differently with random disk files.

LOF — Length of file in bytes.

NAME/AS — Used to rename a disk file, such as NAME oldname.ext AS new name.ext, being sure to use the extensions.

RESET — (*Not* keyboard reset.) Closes all disk files and indexes the disk. (SET, shown in the Sanyo Reserved Word List, has not been implemented in Sanyo BASIC for the 550/555. This would normally provide a means to write-protect a disk, which is then removed with the RESET statement.)

ALL, CHAIN, COMMON — Pass variables between programs.

INPUT$ — Receives a specified number of characters from the disk, keyboard or serial port.

PACK$, UNPACK$ — Compresses and decompresses disk data files.

Once again, I suggest that if you intend to do any significant programming with disk files — sequential or random — you should get a book that covers that subject in detail. This can only be considered an introduction.

BASIC TRAINING

Figure 1: RUN **of menu item.**

```
1001    All-Kleen Qt     35    4.5    6.9
1002    Oven Clnr Pt     84    3.75   5.75
1003    Metal Clnr       37    8.75   13.25
1004    Chrome Clnr      56    2.45   3.8
1008    Alum.Clnr Qt     32    8.35   12.6
1012    Water Repell     27    3.75   5.75
1020    Upholst.Clnr     17    8.35   12.6
1022    Powder Det.6#    75    6.75   10.2
1023    Fab.Soft.Qt      22    3.75   5.75
1025    Oven Clnr Qt     33    6      9
1029    All-Kleen Gal    10    14.5   21.75
1033    Liq.Det.Qt       45    3.75   5.7
1035    Fab.Soft.Gal     30    11     16.5
1041    Furn.Pol.Spray   28    5.75   8.75
1045    Furn.Pol.Crm     27    4      6
1046    Powder Det.12#   35    11.7   17.55
1048    Pre-Wash Liq     31    8.75   13.25
1050    Liq.Det.Gal      23    12.5   18.75
1055    Drain Clnr       39    3.75   5.7
1057    Floor Wax Qt     29    4.5    6.9
0       ZZZ              0     0      0
```

Listing 1: DATA **"loader" program.**

```
1Ø CLS
2Ø OPEN "O",#1,"DATFILE1.DAT"
3Ø READ A,N$,B,C,D
4Ø PRINT A,N$,B,C,D
5Ø WRITE#1,A,N$,B,C,D
6Ø IF N$="ZZZ" THEN CLOSE:END
7Ø GOTO 3Ø
1ØØ DATA 1ØØ1,All-Kleen Qt,35,4.5Ø,6.9Ø
11Ø DATA 1ØØ2,Oven Clnr Pt,84,3.75,5.75
12Ø DATA 1ØØ3,Metal Clnr,37,8.75,13.25
13Ø DATA 1ØØ4,Chrome Clnr,56,2.45,3.8Ø
14Ø DATA 1ØØ8,Alum.Clnr Qt,32,8.35,12.6Ø
15Ø DATA 1Ø12,Water Repell,27,3.75,5.75
16Ø DATA 1Ø2Ø,Upholst.Clnr,17,8.35,12.6Ø
17Ø DATA 1Ø22,Powder Det.6#,75,6.75,1Ø.2Ø
18Ø DATA 1Ø23,Fab.Soft.Qt,22,3.75,5.75
19Ø DATA 1Ø25,Oven Clnr Qt,33,6.ØØ,9.ØØ
2ØØ DATA 1Ø29,All-Kleen Gal,1Ø,14.5Ø,21.75
21Ø DATA 1Ø33,Liq.Det.Qt,45,3.75,5.7Ø
22Ø DATA 1Ø35,Fab.Soft.Gal,3Ø,11.ØØ,16.5Ø
23Ø DATA 1Ø41,Furn.Pol.Spray,28,5.75,8.75
24Ø DATA 1Ø45,Furn.Pol.Crm,27,4.ØØ,6.ØØ
25Ø DATA 1Ø46,Powder Det.12#,35,11.7Ø,17.55
26Ø DATA 1Ø48,Pre-Wash Liq,31,8.75,13.25
27Ø DATA 1Ø5Ø,Liq.Det.Gal,23,12.5Ø,18.75
28Ø DATA 1Ø55,Drain Clnr,39,3.75,5.7Ø
29Ø DATA 1Ø57,Floor Wax Qt,29,4.5Ø,6.9Ø
1ØØØ DATA Ø,ZZZ,Ø,Ø,Ø
```

Listing 2: "Kernel" inventory/invoice program.

```
1Ø CLS:OPTION BASE 1
2Ø DIM INV(1ØØ,4),DES$(1ØØ)
3Ø OPEN"I",#1,"DATFILE1.DAT"
4Ø FOR X=1 TO 1ØØ
5Ø INPUT#1,INV(X,1),DES$(X),INV(X,2),INV(X,3),INV(X,4)
6Ø IF DES$(X)="ZZZ" THEN CLOSE:GOTO 1ØØ
7Ø PRINT INV(X,1),DES$(X),INV(X,2),INV(X,3),INV(X,4)
8Ø NEXT
1ØØ REM * MENU *
11Ø CLS
12Ø PRINT:PRINT"Choose one of the following, by number....."
13Ø PRINT TAB(2Ø)"(1) List entire inventory."
14Ø PRINT TAB(2Ø)"(2) Change data file."
15Ø PRINT TAB(2Ø)"(3) Generate order."
16Ø PRINT TAB(2Ø)"(4) Verify order."
17Ø PRINT TAB(2Ø)"(5) End program."
18Ø PRINT:INPUT"Enter number.......";S
19Ø ON S GOTO 2ØØ,3ØØ,4ØØ,5ØØ,6ØØ
2ØØ REM * Listing entire inventory without screen stop *
21Ø CLS
22Ø PRINT"Stock Number","Description","Inventory","Cost","Sugg.Retail"
23Ø FOR X=1 TO 1ØØ
24Ø PRINT INV(X,1),DES$(X),INV(X,2),INV(X,3),INV(X,4)
25Ø IF DES$(X)="ZZZ" THEN GOTO 1ØØØ
26Ø NEXT
3ØØ PRINT:PRINT
31Ø PRINT TAB(9)"*****************************************************"
32Ø PRINT TAB(9)"* This program module would allow you to change any item in  *"
33Ø PRINT TAB(9)"* array, and then create a new DATA FILE with the revisions. *"
34Ø PRINT TAB(9)"*****************************************************"
35Ø GOTO 1ØØØ
4ØØ PRINT:PRINT
41Ø PRINT TAB(9)"*****************************************************"
42Ø PRINT TAB(9)"* This program module would generate and print an order,     *"
43Ø PRINT TAB(9)"* based on the information placed in the arrays by the       *"
44Ø PRINT TAB(9)"* DATA FILE.                                                 *"
45Ø PRINT TAB(9)"*****************************************************"
46Ø GOTO 1ØØØ
5ØØ PRINT:PRINT
51Ø PRINT TAB(9)"*****************************************************"
52Ø PRINT TAB(9)"* This program module would verify an order based on the     *"
53Ø PRINT TAB(9)"* information placed in the arrays by the DATA FILE.        *"
54Ø PRINT TAB(9)"*****************************************************"
55Ø GOTO 1ØØØ
6ØØ PRINT:PRINT
61Ø PRINT TAB(25)"See you another time.....Bye!":END
1ØØØ PRINT:INPUT"Press ENTER to return to MENU.....";M
1Ø1Ø GOTO 1ØØ
```

'Holy nomenclature, BATch Man. They certainly speak a strange language in this comic book.'

The Adventures of BATch Man!

By Danny Humphress
Soft Sector Technical Editor

Somewhere in Gotham City, in the clandestine, cavernous holds of a Sanyo computer, BATch Man prepares for his next adventure. Never missing a call to serve the citizens of his city, he is ever ready to fight the tedium of repetitious typing and the chaos of recalling formidable commands. Using his .BAT files, he zooms through commands and directories restoring order to MS-DOSdom.

We used BATch Man's powers last month to take control of our computers, freeing our minds for more creative endeavors. We made .BAT files for BATch Man and he followed our orders unwaveringly. Until now, though, we have just specified a list of commands to be followed sequentially. Today, we'll begin to learn how to let BATch Man do the thinking for us. Instead of just listing our orders such as: "do this, then this . . . ," we'll let BATch Man make some decisions by saying: "if this, then do that, otherwise do those and then do this."

Sound complicated? Well, it isn't complicated at all, as you shall soon see.

Pseudo-Programming

Batch file processing is very similar to traditional computer programming. You give the computer a list of specific commands for it to follow. In the case of MS-DOS batch file processing, most of the commands are simply standard DOS commands and programs. This would satisfy most needs, but batch processing goes one step further by providing us with its own special commands to give us greater control.

Now, batch file processing was never meant to replace real programming languages. It is not as versatile, and (take comfort) not as complicated. It was designed for the very specific task of governing the overall operation of MS-DOS commands and programs.

Remarkable

Last month we created a little batch file to run our imaginary payroll program and then automatically backup the disk. This was an example of a small, uncomplicated batch file that needed very little explanation. You could look at it several months after it was written and easily understand what was going on. Many times, though, batch files are much larger and more complicated. The remarks used within the file give information to the user while the file is running and serve as notes to anyone making changes to the file in the future.

A special command, REM, allows you to put comments in a batch file. The REM command, followed by any comments, is entered on a single line in the batch file. When the computer processes this line, the comments are displayed on the screen. Use EDLIN or COPY CON: to create this batch file. Name it TEST.BAT.

```
REM ***** Disk Directory *****
DIR /W
REM ***** Check Disk *****
CHKDSK
```

Try the new batch file by typing TEST at the DOS prompt. You'll see the REM commands displayed on the screen just as you typed them.

You can think of the REM statement as one that tells the computer to ignore whatever you type on that line. And that's just what it does.

Echo . . . cho . . . ho . . . o . . .

Once in a while, you'll create a batch file for someone less experienced with the computer to use. As you know, the commands in a batch file normally appear on the screen while the file is executing. The operation of the computer is confusing enough to the neophyte without having these cryptic commands flashing up on the screen.

By using the ECHO OFF and ECHO ON commands, you can control whether DOS commands appear on the screen while the batch file runs. Using ECHO OFF causes only the results of commands to be displayed, while ECHO ON returns to the normal mode of having both commands and results

display on the screen. By the way, the REM lines are among those that are not displayed.

Try adding a line to the top of our TEST.BAT file:

```
ECHO OFF
REM ***** Disk Directory *****
DIR /W
REM ***** Check Disk *****
CHKDSK
```

When you run the batch file, you'll notice that the only command displayed was the first ECHO OFF command and that the remark lines are also not displayed. It was not necessary to do ECHO ON at the end of the batch file since MS-DOS automatically returns to this state after executing the file.

ECHO keeps the screen nice and tidy while a batch file is running, but our REM commands become almost useless! As mentioned earlier, REM statements are not displayed when ECHO is off, however we can use the ECHO command itself to produce just about the same results. You can use ECHO just as you would a REM command by entering miscellaneous comments after it on the same line. The only difference is that the only things displayed are the comments. The ECHO command word is not seen on the display. This makes the output much neater than with REMs.

Change the batch file to the following and then see how it runs:

```
ECHO OFF
ECHO ***** Disk Directory *****
DIR /W
ECHO ***** Check Disk *****
CHKDSK
```

You should see that the comments are displayed, but without funny commands before them.

Passing Parameters

The batch files we've worked with so far have always done the same thing each time they're run. It is sometimes convenient or necessary to have a batch file that can be used for a number of different conditions.

For instance, the DIR/CHKDSK batch file we've been using today gives us a directory of all the files in the current directory of the current drive and disk space information for the drive. If, however, you wanted to use the same batch file for a different drive, you would have to copy the file to the drive and change the current default drive. There is an easier way.

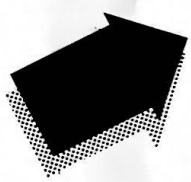
Change the TEST.BAT file to the following, but don't run it just yet:

```
ECHO OFF
ECHO ***** Disk Directory of Drive %1 *****
DIR %1/W
ECHO ***** Check Disk of Drive %1 *****
CHKDSK %1
```

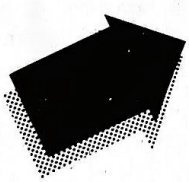
Now, enter the following command from the MS-DOS prompt:

```
TEST A:
```

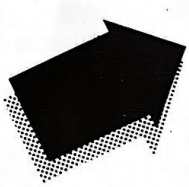

Frustrated with Inflexible Software?



BGW Systems, Inc. announces a significant breakthrough.



Software you can customize without programming experience.



Business tools that do what you want - quickly, easily, inexpensively.

ACCESS FIVE©

Take our mailing list manager, ACCESS FIVE.* It's a simple product that packs a lot of punch. In fact, it's like buying multiple programs in one. For example, from easy menu choices, you can customize it to manage mailing lists, product inquiries, order entry, short personnel records, and time tracking.

ACCESS ABILITY

With ACCESS FIVE, you can add, change, and delete, then select, sort, and print one or more records. Print a mailing label or an entire record. Put in your own special codes and action fields (to show what you sold to a customer on the last six calls, for example).

SPEEDY

ACCESS FIVE can locate a single name in a list of 10,000 in less than two seconds average time.

Concerned about future data compatibility? You should be. You'll never have to re-key *these* files again. ACCESS FIVE has a back-end formatter to generate Mailmerge (read by WordStar) or DIF format files (read by LOTUS 1-2-3 and dBase II).

ALL THIS, and it's easy to use and affordable. This is only the beginning. Soon, you can choose from other flexible software products. At BGW Systems, Inc., we're building tools to help you run your business. After all, isn't that what it's all about?

$69.95

BGW Systems, Inc. has additional business software available:

■ **General Ledger (GL)** *$79.95*

A perfect package for the non-accountant or small business owner. Perform monthly and annual financial functions using your InfoStar package.

■ **General Graphics Utility (GGU)** *$39.95*

Display and print line, bar, and pie graphs with up to six sets of variables. Color monitor can display six colors.

■ **Additional programs** available for home use.

*ACCESS FIVE runs on the Sanyo, IBM PC and compatibles. To order any of these programs, send check or money order to BGW Systems, Inc., 16714 S. Meridian, Suite 200, Puyallup, WA 98373. (206) 845-7845. Please specify hardware system when you order. Include $3.00 shipping charge.

BGW SYSTEMS, INC.

16714 S. Meridian, Suite 200
Puyallup, WA 98373
(206) 845-7845

Trademarks: MailMerge, Micropro International; LOTUS 1-2-3, Lotus Development Corporation; dBASE II, Ashton-Tate, Inc.

You should get a directory and a disk check for the disk in drive A:. You might say that that's no different from what you got before. Ah, but there is a difference. Try this command. If you have a hard disk drive, substitute C: or E: for the B:.

```
TEST B:
```

You should get the same information for the disk in drive B: (or C: or E:) if there was a disk there. This was all done by adding a %1 to the DIR and CHKDSK command lines. The %1 tells MS-DOS to substitute whatever the first thing you typed after the batch file name in the place of the %1. So, to MS-DOS, DIR %1/W looked just like DIR B:/W.

The %1 is called a replaceable parameter. Ten parameters are available, from %0 to %9. The %0 parameter always contains the name of the batch file that's running. Enter this batch file and call it TEST2.BAT:

```
ECHO OFF
ECHO The name of the file is %0
ECHO Parameter 1: %1
ECHO Parameter 2: %2
ECHO Parameter 3: %3
ECHO Parameter 4: %4
ECHO Parameter 5: %5
```

Now run it with this command line:

```
TEST2 ONE TWO THREE FOUR FIVE
```

Your results should look like this:

```
The name of the file is TEST2
Parameter 1: ONE
Parameter 2: TWO
Parameter 3: THREE
Parameter 4: FOUR
Parameter 5: FIVE
```

As you can clearly see, %0 contained the name of our batch file, TEST2.BAT, and the next five numbered parameters contained the five words we typed after the batch file name.

Parameters are passed to a batch file by just entering single words or strings of characters separated with spaces.

When you begin putting together larger batch files for your own applications, you'll wonder how you did it without using replaceable parameters. Without them, you would have to make a separate batch file for each slightly different situation.

In our next episode . . .

We find BATch Man streaking through the darkness of disks and directories, and taking on more formidable enemies. He'll begin using those "if . . ." clauses we spoke of earlier as well as "looping" through tasks with ease. BANG! POW! ZAP!

Great Software For Your Sanyo At Low, Low Prices

RAM Disk. MOR: An extremely flexible and versatile RAM disk, unlike any others you may have seen. May be removed by a single command, or reconfigured to a different disk size without having to reboot and recopy files. If the computer quits in the middle of a session, MOR lets you recover the RAM disk and your files may still be there. Also tells DOS to forever reload COMMAND.COM from drive A, so you need not worry about using the RAM as default. Automated installation on all versions of DOS 1.25 and 2.11. Runs on 128K systems, too. Only **$24.95**

Spooler. SPUL: A multi-function spooling utility that provides 1 to 64K printer buffer. Unlike other spoolers, SPUL lets you pause and resume printing, or cancel everything in the buffer, all from the keyboard. DOS Control-P echoes are buffered. As if that's not enough, we have added a SCREEN DUMP capability that dumps any number of lines on the screen to the buffer. Now, tell us which program can dump the entire screen and return control to you in just one or two seconds! Requires any version of DOS 1.25/2.11 and any RAM size. Only **$24.95**

Bibliography. An electronic marvel for modern scholars! Definition files and command files all properly set up for your DataStar and MailMerge to produce MLA style bibliography. Can be converted to any other styles. Saves you hours of frustration in creating your own. Ready for data entry. Can sort by any field. Number of bibliographic items limited only by your disk capacity. Many tricks included; serves as a tutorial in itself. Used by the author in his Ph.D. dissertation. Only **$15.95**

Mailing List. Definition files and command files all properly set up for your DataStar and MailMerge to produce a variety of mailing lists to suit different needs. Number of records limited only by your disk capacity. Can sort by any field. Includes many tricks and tips and a command file to print envelopes. Can print 1 or 3-across labels. Originally developed for a magazine subscription agency to keep track of more than 100,000 subscribers. Why waste time creating your own when you can use our fully tested and debugged program? Only **$12.95**

Proportional Spacing. A program that automatically installs your WordStar to print in proportional spacing. This means such letters as "i" and "l" will occupy much less space than letters like "m" and "w," and the space in between words will be evenly spread out, resulting in a dramatically improved printout that looks almost *typeset*. You still get all the WordStar printing features, including right justification, boldface, underscore, superscript, etc. You get best results when you use a PS printwheel, but fine even if you use the ordinary non-PS 10 or 12-pitch printwheels. No crowded characters, even on one-word short lines. Comes with a disk and a manual plus a variety of printing tricks. Requires Juki, Brother, Silver-Reed, or any other letter-quality printers. Developed by the author to print his Ph.D. dissertation. **Extra Bonus for Juki 6100 printer:** Our Proportional Spacing program will also automatically install your WordStar to print French cedilla (ç) and German umlaut (ü), two foreign characters not on your keyboard. Now your Juki can print all the diacritical marks needed for French and German. Information on how to print the other four special characters (¢ ¬ § £) is also included in our Manual. Fully tested on Juki 6100. All for only **$19.95**

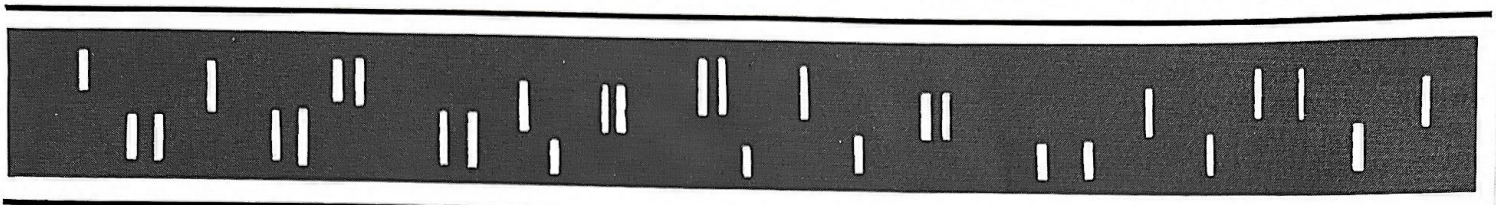
Juki 6100 Printer Accessories

Genuine Juki 6100 100-character Printwheels. Only **$22.95** each

Roman PS	ABCDEFGHI ~ç¬§£¨ç `abcde^:;<=>?
Standard PS	ABCDEFGHI[Ω]Δ °abcdef ½¶¼²¢µ§£³¥ !"
Prestige Elite 12	ABCDEFGHI[\]^ `abcdef{|}~ç¬§£
Joan Italic 10/12	*ABCDEFGH[Ω]Δ_°abcde½¶¼²¢µ§£³¥*
Mini Majestic 12/15	ABCDEFGHIuvwxyz½¶¼²¢µ§£³¥! "#$%

Chaucer Software
P.O. Box 2308
Princeton, NJ 08540
Telephone (609) 734-9016

Check, Visa, MasterCard accepted
All U.S. orders shipped FREE, via First Class Priority Mail, in 24 hours. Foreign customers, please add U.S. $10.00 per order (any item) for Air Mail. NJ residents only, please add 6% sales tax.



BUSINESS SECTOR

CHARLOTTE & BRIAN STONE
Soft Sector Contributing Editors

Q. *How do you use* DEBUG *to change location 099Eh to 10h? Where do you get the* DEBUG *program?*

Jesse Mitchell
Longview, TX

Juan Claudio DeVincenti
Bethesda, MD

N.A. Kelly
Denman Island, B.C., Canada

A. OK, all you alert readers out there caught me trying to give you "quickie" advice without actually trying it out myself. I can't really say you swamped me with letters, but enough of you have gotten the *DataStar* error message "File has not been properly terminated" to really need to know how to use DEBUG. The remedy given in the February '85 issue of SOFT SECTOR comes from MicroPro. Here is how to do it.

DEBUG is a utility program found on your system or DOS disk. Be sure you have copied it from your master DOS disk to your working DOS disk. Make a backup copy of FORMSORT.OVR to try this on so you can see if it works before you change the version of *FormSort* you use regularly. It does not matter if you put the backup on your system disk temporarily or on a separate disk if you have two drives.

Put the system disk with DEBUG.COM on it in the A drive. If you have FORMSORT.OVR on a separate disk, put it in the B drive. Type DEBUG B:FORMSORT.OVR and press RETURN. If you have both programs on the same disk, type DEBUG FORMSORT.OVR and press RETURN.

The screen will display the DEBUG prompt, which is a flashing hyphen. Type D99E and press RETURN. The screen will display what looks like a bunch of garbage — alpha and numeric characters in groups. This is actually a section of the program code for FORMSORT.OVR Location 099Eh is the pair of numbers second from the right on the top line of the display.

Now type E99E and press RETURN. The screen will display 0BE4:099E 00. The first two groups of four are the "address" — the 00 is the value now found at that address. Type 10 (the line will read 0BE4:099E 00.10) and press RETURN.

Now type D99E and press RETURN again. The screen will display the alphanumeric soup again, but now there will be a 10 instead of 00 second pair from the right on the top line. Type W and press RETURN. Now the change you have made will be written to the disk. Type Q and press RETURN to quit and you will have your system prompt back.

Make a backup of your defective .DTA file and sort it with the changed *FormSort*. Then check it out with *DataStar* before deleting any of your old files. If everything checks out, you can delete the defective .DTA file with its matching .NDX file and replace the old FORMSORT.OVR file with the one you have altered.

Be sure to do all of this with backup copies. You are actually changing the program (pretty powerful stuff) and you don't want to romp through it like a bull in a china shop. Good luck.

Q. *Your column gives the impression that* SuperSort *is not included with the Sanyo version of* FormSort. *Not*

CHRYSON COMPUTER

SHIPPING CHARGES ARE $3.00 PER ORDER, REGARDLESS OF WEIGHT OR PRODUCT SIZE. NO EXTRA CHARGE FOR MASTERCARD/VISA ORDERS

LIMITED QUANTITY SPECIALS
VALID ONLY WHILE CURRENT SUPPLIES LAST

MBC-775, Portable color computer $1985.00
VIDEO RAM BOARD (includes MS-DOS 2.11 and GW-BASIC plus manual) ..... $ 175.00
VOLKSMODEM, includes membership in THE SOURCE ..... $ 59.95
CABLE A (for use with Volksmodem) ..... $ 9.25
CDC DISKETTES, DOUBLE SIDED/DENSITY (12/box) ..... $ 21.95
MAXELL DISKETTES, single sided ..... $ 20.95
3M DISKETTES, DOUBLE SIDED/DENSITY ..... $ 24.50
SENTINEL DISKETTES, DOUBLE SIDED/DENSITY (packaged in hard plastic box for easy storage, multi-color, LIFETIME GUARANTEE) ..... $ 24.50
FLIP'N'FILE 25, locking flip top disk storage container keeps disks flat while storing but when opened displays them in 5 groups ..... $ 14.95

ACCESSORIES/MISCELLANEOUS

KEYBOARD COVER, CLEAR HARD PLASTIC ..... $ 9.95
COMPUSERVE KIT, includes 5 hours connect time to COMPUSERVE, user ID, manual binder-start telecommunicating! ..... $ 28.95
DUAL JOYSTICK ADAPTER, Lets you connect two joysticks externally on your Sanyo ..... $ 25.45

SOFTWARE PRODUCTS FOR BUSINESS — HOME — PLEASURE

LOTUS 1-2-3 ..... $ 329.00
SUPERCALC III ..... $ 239.30
SUPERCALC III, program to overlay for use with the Sanyo MBC550/555(2 drives are required) ..... $ 20.00
(sold with SUPERCALC III only)
dBASE II ..... $ 339.39
Flight Simulator by Microsoft ..... $ 42.42
PLEASE, by HAYES, THE powerful yet incredibly easy to use DATABASE program ..... $ 239.95

U.S. DIGITAL PROGRAMS

MERCHANDISER, by U.S. DIGITAL keeps your inventory, receiving records, sales records, mail lists, and prints reports as well as sales receipts, and MUCH MORE (used now by CHRYSON COMPUTER instead of many others available) ..... $ 359.95
COPYLINK ..... $ 72.95
CPeMULATOR ..... $ 71.95
PREP, Personal Revenue Enhancer ..... $ 49.95

MichTron PROGRAMS

DS-DOS+ 2.11 ..... $ 42.45
CORNERMAN ..... $ 33.95
MI-KEY ..... $ 29.70
PRINTER HELPER ..... $ 25.45
CASHMAN ..... $ 29.70
PICASSO ..... $ 84.95
DS-DOS+ 1.25 ..... $ 25.45
MI-TERM ..... $ 67.95
M-DISK ..... $ 29.70
SOFT SPOOL ..... $ 29.70
TIME BANDIT ..... $ 33.95
MIGHTY MAIL ..... $ 67.95

(ALL OTHER TITLES AVAILABLE AT 15% OFF RETAIL)

TOTAL LEARNING SYSTEMS (instructional programs)

TLS SANYO BONUS PACK ..... $ 33.95
TLS+ for MBC-775 ..... $ 42.95
TLS TUTOR SERIES, LOTUS 1-2-3, EasyWriter, SuperCalc, dBase II, Easy Planner/Filer, etc ..... $ 26.50

INFOCOM SOFTWARE

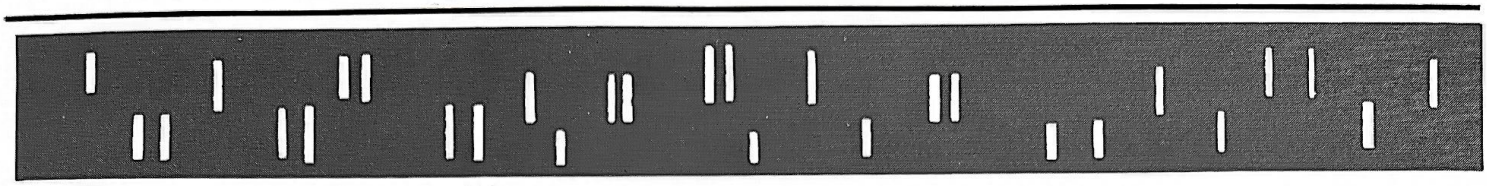
ZORK I ..... $ 29.95
ZORK III ..... $ 32.32
SORCERER ..... $ 34.95
SUSPECT ..... $ 34.95
DEADLINE ..... $ 38.95
CUTTHROATS ..... $ 29.95
ZORK II ..... $ 32.32
WITNESS ..... $ 29.95
INFIDEL ..... $ 34.95
ENCHANTER ..... $ 29.95
STARCROSS ..... $ 38.95
PLANETFALL ..... $ 29.95

MISCELLANEOUS SOFTWARE

TEMPLATES FOR PLEASE ..... $ 21.50
Template titles include APPLICANTS, APPOINTMENTS, CASH FLOW, HOUSEHOLD RECORDS, INVENTORY, INVOICE,etc
(with each PLEASE software package there is a certificate for one free template of your choice.)
SOLUTIONS series for PFS FAMILY OF SOFTWARE ..... $ 15.00
CHECKS, MAIL LIST, HOME INVENTORY, DISK LIBRARY

(Hardware, Printer, Monitor prices include extra charges for weight and insurance)

CHRYSON COMPUTER 109 Lisa Drive Brockton, Mass. 02402 (617) 587-4639



so, at least according to my FormSort *screen. Every time I invoke* FormSort *on a* DataStar *file, I get the screen message "Please wait . . .* SuperSort *is now sorting the Data File" and ditto for the Index File.* FormSort *in the new* InfoStar+, *by the way, provides for either ascending or descending sorts.*

Also in "Business Sector" (January '85), you recommended using the Diablo 1610 installation for the Sanyo PR-5000 series of printers rather than the Sanyo PR-5000 choice from the menu. Are there any extra benefits from doing it your way?

E.R. Bailey
East Brady, PA

A. *SuperSort* is much more versatile than *FormSort*. *DataStar* files have carriage return delimited records with comma delimited fields. *FormSort* can only handle this type of file and must have a definition file present from which it reads the structure of the data file. *SuperSort* can handle data files compatible with BASIC, FORTRAN, COBOL, assemblers and text editors. Some of these are very different from *DataStar* files. *SuperSort* does not use a definition file to learn the structure of a data file. Rather, the user must know the structure and define it to *SuperSort* through the use of commands within the *SuperSort* program.

SuperSort predates *FormSort*. Therefore, I am sure that MicroPro took a portion of their existing *SuperSort* and altered it to make it more "user friendly" for use in their *ReportStar* package. This would be the source of the screen message which is confusing to all of us — "SuperSort is now sorting . . . ".

The reason that I suggest using the Diablo 1610 installation over the Sanyo PR-5000 installation is that there seems to be some errors that cause problems with the printer in the Sanyo installation. Also, the Sanyo printers are Diablo code compatible.

Q. *When I run* WordStar *from drive B, log onto drive A and attempt to open a file on drive A, an Error E46 message comes up on the screen and tells me to press ESCAPE. This error doesn't occur when I run* WordStar *from drive A, log onto drive B and open a file on drive B. Why is it a problem to log B to A and open files?*

I cannot get all of the test document features with my C. Itoh 8510A or my Riteman 15 with WordStar. *I have run the* Install *program several times, but I still cannot get the full benefit.*

Albert R. Price
Austin, TX

A. The reason that you are getting the error message is because *WordStar* always looks for the overlay (.OVR) files on drive A. When you are using *WordStar* in drive B and the data files in drive A, it is looking on the wrong drive and assumes that the .OVR files are not available.

I do not understand why you would use drive B for the *WordStar* disk and drive A for the data disk. *WordStar* should be on the system disk in drive A and the data in drive B. This would allow you to boot the system and enter *WordStar* without swapping disks to run the program. You could do it the other way around, but it would require installing *WordStar* to look on drive B for the overlay files.

The reason that you are not getting all of the *WordStar* functions with your C. Itoh 8510A and Riteman 15 is because these are both dot matrix printers which do not support all of the daisy wheel printer functions. Please see the first two issues of SOFT SECTOR (August, September

BINARY TREE TECHNOLOGY

(513) 879-4214 P.O. Box 1757, FAIRBORN, OHIO 45324

SPECIAL
REAL TIME CLOCK BOARD
NOW AVAILABLE $89.00

PC LOGO ™

NOW AVAILABLE FOR YOUR SANYO

WE NEED ORIGINAL SOFTWARE

IF YOU HAVE A PROGRAM WORTH MARKETING CALL

ACCESSORIES

180K DRIVE	$119
360K DRIVE	169
800K DRIVE	CALL
8087 APU CHIP	CALL
A,B,C,D,Drive Cable	CALL
RS-232 + MODEM SOFTWARE	99
RS-232	59
64K MEMORY (150NS)	49
128K MEMORY (150NS)	99
JOYSTICK	29
550 COMPUTER COVER	19
6' KEYBOARD CABLE	18
PRINTER CABLE	24
RGB CABLE	20
AUTO DIAL/ANSW MODEM	149
330 BAUD MODEM	65
DUAL JOYSTICK ADAPTER	15

SOFTWARE FOR SANYO

8088 ASSEMBLER TUTORIAL	$39
SANYO BASIC TUTORIAL	49
MS DOS TUTORIAL	39
BINARY TREE FORTH	99
BIORHYTHM	19
ASYNC (MODEM S/W)	49
ADVENTURE 1 (128K)	29
MAIL LIST HANDLER	39
SCREEN DUMP	39
CP/M EMULATOR	80
GRAPHICS PACKAGE	69
COPYLINK	80
PASCAL COMPILER	45
FORTRAN 87	299
DATA MANAGER	39
CAVES OF CARACORROS	29
SEARCH FOR SHARDS	19

DEALER & DISTRIBUTOR INQUIRIES INVITED

Please send cashier check or money order. Personal or company check, allow bank clearance. Visa/MC add 3%. Shipping and handling 3%. Restocking fee for all returned merchandise.

MAXI ACCOUNTANT

The New Value Standard

JUST $449.95 SUGG. RETAIL

Features include:

Fully integrated modules -thirteen major programs contained within Maxi Accountant interact with one another allowing minimal disk handling or runs on any hard drive

Extensive reporting capabilities

Comprehensive, easy to use documentation - including tutorial

Technical support

Accounts Payable

- Check writing with automatic posting to Vendors and Bank Account
- Enter A/P invoices with automatic posting to inventory and purchase orders
- Supports partial payments, Aged A/P balances, and Earned discounts
- Monthly Check, Deposit and Petty cash register
- Complete Audit Trail
- Detailed Vendor Activity and Cash Requirements Report
- Uses same commercially available check forms as payroll
- Provides bank statement reconciliation

Payroll

- Weekly, Biweekly, Bimonthly, Monthly pay periods
- Complete QTR and YTD Pay Journal records
- Handles hourly, salaried and commission pay
- Sales commissions by percentage or dollar amount
- Only requires input of hours worked
- Automatic calculation of regular and overtime pay and all deductions
- 941A Quarterly State Report
- W-2 Forms printing
- Federal and all State Tax Tables
- Personnel information file
- Uses same commercially available check forms as Accounts Payable
- Comprehensive YTD information printed on employee check stub

Accounts Receivable/ Order Entry

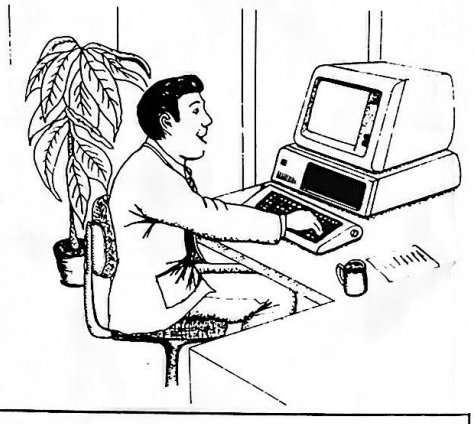
- Alphabetical and numerical sorting of customers
- 500 customers and up to 3000 transactions per 320k diskette (Unlimited number of diskettes allowed)
- Extensive customer information file
- Flags Credit limits and overdue balances
- Invoices from sales orders support backordering system
- Invoices for point-of-sale
- Multiple Price discounts and Sales tax rates
- Sales orders with packing slips
- Supports partial payments, finance charges, aged balances, and statements
- Supports special sales packages (bill-of-material)
- Supplies telephone number and contact name for overdue accounts
- Detailed transaction Audit trail
- Customer Activity Report
- Open Item Balance Forward
- Calculates Sales Commissions for payroll module
- Allows Sales of assets
- Allows sales of non-inventory services

General Ledger

- Chart of accounts
- Itemized monthly Journal transactions
- Asset depreciation, Complete G/L Reports, Daily Journal, Trial Balance, Operating Statement and Balance Sheet
- Supports up to 9 separate Profit Centers

Inventory Control

- Provides ON LINE information to all other modules
- Purchase orders with review or automatic ordering mode
- Complete backordering system included
- 25 items per bill-of-material
- 1500 stock items per 320K diskette with automatic advancement to next diskette
- Complete Vendor information file
- Calculates reorder quantities and displays lead times
- Physical inventory using average cost method adjustments
- Reports in inventory module include: Complete Inventory Report, Sales Analysis, Reorder Report, Purchase Order listing, Sales Package listing, Summary, and Labels



Maxi Accountant is designed for MS-DOS systems, including IBM PC and XT, Zenith Z-100, Texas Instruments PC, Columbia, Compaq, Corona, Televideo, & Sanyo

COMING SOON ! Tandy 1200 - 2000

THE BUSINESS DIVISION
A Subsidiary of Scott Adams, Inc

1-800-327-7172

THE BUSINESS DIVISION

P.O. 3435 • LONGWOOD, FL 32750 • (305) 862-6917

'84) which explain in detail how to use *Install* to get additional features of dot matrix printers from *WordStar*.

Q. *I have a problem getting my Legend 880 printer to work with* WordStar. *I bought the printer from Migraph Software and they say that the Legend is the same as the Mannesman-Tally Spirit 80.*

Fred W. Snow
Medford, NJ

A. The Legend 880 should install and function as an Epson printer from the *WordStar Install* menu. The code set is the same as that shown in the current Epson manual and should function correctly. As with any dot matrix printer, you will not get all of the features of *WordStar* because it was originally intended for use with daisy wheel printers.

Please try the Epson setup. If this does not give the desired results, let me know.

Q. *My problem is how to get more characters to the line in* WordStar. *I have a Sanyo MBC-555-2 and a Juki 6100 daisy wheel printer. In attempting to get more characters to the line, I use ^PA (alternate pitch) to get 12 characters per inch. Then I change the right margin from 65 (default) to 75. But regardless of where I set the right margin, the text won't extend beyond where it would if left at the default. Any help you can give me will be greatly appreciated.*

William M. Herst
Denver, CO

A. First of all, you should install *WordStar* for a Diablo 630 printer, as this is what the Juki 6100 is designed to emulate.

When you wish to change to 12 pitch printing, use the dot command ".CW10" at the top of the text to print in 12 pitch; ten pitch printing (the default) is reset by using ".CW12."

Now reset your margins to the desired width and you should be printing up to 195 characters on 13-inch wide paper.

Q. *When I took the cover off my MBC-550-2 to increase the memory to 256K and install the Video RAM board, I also opened another can of worms.*

My Sanyo BASIC was changed to GW-BASIC. Although I can boot up WordStar *in GW-BASIC, I cannot boot up* EasyWriter *in GW-BASIC.*

I use a Leading Edge RGB monitor which utilizes the D-Sub Miniature nine-pin connector on the Video RAM Board. Would an RGB monitor that uses the original Sanyo RGB socket restore EasyWriter*? I do not want to loose the IBM color graphics capabilities.*

Saul Weinstein
Miami, FL

A. The version of BASIC that you have has nothing to do with using any of the application programs (.COM or .EXE) that you have. Neither *WordStar* nor *EasyWriter I* makes use of BASIC.

The problem that you are having is that *EasyWriter I* is not compatible with the version of MS-DOS that is furnished with the Sanyo Video RAM Board. Why, I do not know. It really should not matter to you because you can continue to use the original version of MS-DOS that you have been using all along. There is no advantage in using *EasyWriter* or any of the bundled software with the Video RAM Board.

Regarding using your RGB monitor, I would suggest purchasing a Sanyo RGB cable to fit the original socket and use that with any software that does not require the Video RAM Board. The MBC-550, in its original mode, has much finer and higher density graphics, plus twice as many colors as the IBM PC.

Q. *I am sending copies of this letter to Systems & Services (my dealer), Star Micronics, Inc. (printer manufacturer), MicroPro and SOFT SECTOR. I have a Star Micronics-Radix 10 dot matrix printer that I am trying to use with* WordStar. *My results are less than expected or desired. I have enclosed*

Find the right word

THE WORD FINDER

(Synonym Finder)

A Thesaurus for WordStar

Multimate, Word Perfect

Improve your writing by finding the *perfect* word. Put your cursor on a word and call up a list of words with similar meaning. Pick one, and voila, your new word replaces your old word. No more fumbling for a book. It's so fast and easy you'll use it all the time. Special introductory offer, only **$79.95!** (Regularly $124.95.) Synonym Finder installs on most machines that run WordStar (3.3 or 3.0), Multimate, or Word Perfect. Specify word proc., computer, operating system (MS/PC DOS or CP/M 80) and disk format. New database has ⅓ more words than Random House and uses ⅓ less disk space. Easy to install and operate. Highly rated by dozens of reviewers and users groups. Add $2.50 shipping and NYS residents add sales tax. Okay! My check is enclosed for $_____ (or charge my VISA/MC acct. #_____ _____ expires_____/_____).

Writing Consultants

Suite 349, 11 Creek Bend Drive – Fairport, NY 14450

Orders only: 800-828-6293 Info: 716-377-0130

dealers and distributors please call or write

NOW. SANYO POWER.

The MBC 550 Series

Monitor Optional

The MBC 550 Series are high performance, MS-DOS, 16 bit personal computers with color graphics and up to 256K RAM expandability. Available with either 160K or 360K drive(s).

All models come with MS-DOS, Basic, WordStar,® CalcStar,® EasyWriter I.™ Dual drive models come with additional IUS or MicroPro® bundled software. And, the powerful operating system allows you to run many of the IBM PC business software programs. All for a price that can't be beat.

If your needs are for word processing, accounting, spreadsheets, data base management, advanced integrated programs, or home and educational applications, experience the power of the Sanyo MBC 550 series now.

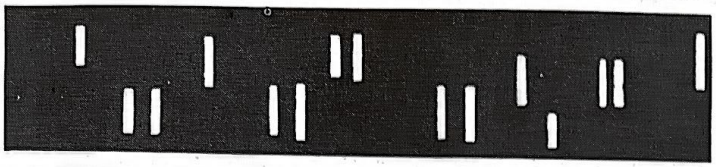
SANYO

COMPUTER DIVISION

SANYO BUSINESS SYSTEMS CORP.

51 Joseph Street, Moonachie, N.J. 07074

YOU'LL FIND OUR NAME EVERYWHERE.



a copy of PRINT.TST *with the desired features highlighted. Your help will be greatly appreciated.*

Jacob Berge
West Islip, NY

A. The biggest problem you are having is using *WordStar* set up for the IBM dot matrix printer. This is a much newer version of the basic Epson printer and is not necessarily identical to your Radix 10, which emulates the Epson family of printers.

The first thing to do is install *WordStar* with the Epson selection from the *Install* menu, then try the functions to see how they work. Then install any special functions following my articles in the first two issues of SOFT SECTOR.

One thing that you must keep in mind is that most dot matrix printers will never do everything that *WordStar* can do because it was designed for daisy wheel printers.

If you follow the articles as suggested, you will be able to get most of the functions that you desire. Variable pitch will be limited to the three basic sizes available from your printer.

Q. *I am having some problems with my printer when using* WordStar *and I hope that you can help me. I am unable to take advantage of boldface, doublestrike or underlining. Instead of performing these operations on the line it is supposed to, my printer drops down one line and does the underlining or boldface on the next line. My printer is an Olivetti PR-2300 Spark Dry Jet.* WordStar *is configured for the standard printer as the Olivetti is not on the menu.*

My second problem is that the printer will "hang" without warning while printing. The only remedy is to lift the cover and then put it back online. This is very annoying when you want to print a long document and would like to do something else while the printing is being done.

My last question involves ReportStar. *How can I get a report to print on more than 80 columns? When I choose the fields to be included in the report, it often extends more than 80 columns. But I want to insert wide paper and carry right on. (This is my office printer, not the Olivetti.)* ReportStar *insists on printing just 80 columns and doing the rest on another page. Can I tell it to print more than the 80 columns?*

Clay Umberfield
Monterey, CA

A. I am sorry to inform you that your printer will not give you the functions that you desire, with *WordStar* or any other word processing software that I know of. The reason is the way that the internal software of the printer treats the incoming information.

The following are the only features that I feel you will be able to use:

— 10, 12 and 18 characters per inch (horizontal spacing).
— Six or eight lines per vertical inch.
— Double-wide characters.

All of the other functions that you would like to do require that the printer do a carriage return without a line feed. The Olivetti PR-2300 printer will not do this.

Regarding your problem with the printer occasionally locking up during printing, this would seem to be a mechanical fault unless you are accidentally sending an instruction to the printer to go offline.

The only time that I know of when *ReportStar* will print only 80 columns and do the rest on another page is in Redit during a ^W printout. During the actual running of a report, it should print full width on a wide-carriage printer. A wide report printed on a regular letter-size carriage printer will cause the lines to wrap around to the next line, not the next page, unless condensed print is used.

During a ^W printout, if your report layout is wider than 79 columns, a prompt message will appear that says: "Please enter page width (in columns): 079."

The default is 079. The cursor will be flashing under the zero in 079. If you are using a wide printer, type 132 and press RETURN. This will allow *ReportStar* to print the full width of the page. If you are using a letter-size printer and have already set it to use condensed print, the little white lie of typing 132 will give you a full-width copy of a wide printout on a letter-size page.

Q. *My question concerns* CalcStar. *A column can be expanded to a total width of 63 points. However, the edit*

MATHSTAR

Four function **math**, right in
WordStar!

Do math right in WordStar. Don't ever reach for the calculator again!

\+ - X ÷

Even vertical column addition!

CP/M or MS-DOS (specify format)

Supports complex formulas, up to 19 digit numbers, floating dollar sign, decimal rounding, negatives in brackets (500), commas in 1,000's, and more. Easy to install and use.

$49.95 plus $2.50 shipping

Okay! My check is enclosed for $..... (or charge my VISA/MC acct # ..... exp .....).

Writing Consultants
Suite 349, 11 Creek Bend Drive - Fairport, NY 14450
Orders only: 800-828-6293 Info: 716-377-0130
dealers and distributors please call or write
We also market ProportionalStar and Synonym Finder

box at the bottom, where the entry is made, will not accept more than 25 points or so. This limitation has been very inconvenient for long formulas. Is there any way to expand the edit box so that the total entry can be wider?

Apparently Sanyo has never made a reference manual for CalcStar, *and I can find nothing in the tutorial which addresses itself to this point. There must be some way, because otherwise, it wouldn't make much sense to allow a full width of 63.*

George W. Varn
Jacksonville, FL

Tom Hettinger
Berlin, NH

A. There are some limitations in *CalcStar* that none of us understand. One of these is the fact that you can format a column to be 63 characters wide, but you cannot fill such a column. The limitation for numeric entry is 27 characters and 35 characters for text entry. The reason behind this eludes me. The only use I can see for the extra wide column is for looks. You would be able to have wide margins around centered text for appearances sake. None of the MicroPro literature available to me offers any way around the limits set.

Q. *I have some kind of glitch in my* CalcStar *operation which occurs only on line number 32, whenever I try to sum the contents of a row or column. If I reenter the calculation instruction in the line number 32 cell, it refigures correctly — but if I "Recalculate All," the entry changes into either 0.00 or 1.00 and all subsequent calculations also become adjusted incorrectly.*

Philip Atiyeh
Avon, CT

Keith A. Kidwell
Rainier, WA

A. Many readers have written to tell us of the glitch in our version of *CalcStar* that causes errors in calculations in line 32 of a spreadsheet. This glitch seems limited to the version distributed with the 550 series from Sanyo. I would be interested in hearing from anyone possessing an MS-DOS version of *CalcStar* direct from MicroPro (purchased on the open market — not bundled) to see if this glitch is present. MicroPro will not support those of us with bundled software, even to the extent of denying the glitch in their open market product. I have the CP/M version which came with a different model of Sanyo computer and there is no such glitch. For now, unless Sanyo can help us, we are on our own to find a correction for the problem. The temporary solution is to leave line 32 blank or use it for text entries only.

Q. *My problem involves trying to read a "foreign" file to* CalcStar. *At work, the IBM PCs use* dBASE II *which I like very much. In* dBASE *it is possible to copy a file*

★ SANYO 550/555 ★ IBM-PC ★ PC jr. ★ IBM Compatibles ★ TANDY 1000/1200/2000 ★

#SS1 — IQ Builder . . . . . .$8.95ppd.
Numbers and Number Series
Analogies Drill
Synonym Drill
Antonym Drill

#SS2 — Young Folks Diskette .$8.95ppd.
Rock Stone & Scissors Game
Concentration Board Game
Math Dice
Snoopy Display or Poster
Spelling Game
Hangman Guessing Game
Think of the Computer's Animal
Tic-Tac-Toe
Reading Skills Drill
Hide & Seek

#SS3 — Arcade Disk. . . . . .$8.95ppd.
Ping-Pong
Defend the Earth
Shooting Gallery
Spinout
Ghost Gobbler
Barricade
Motorcycle Jump
Startrek

#SS4 — Strategy I. . . . . .$8.95ppd.
Ancient Gomaku
Beat The Taxman
The Challenging game of AWARI
Hamurabi - You Are the King of your Kingdom
Desert Survival Simulation
Your The General in this WAR
FLIPPER - A Challenging Logic Game
BATTLESHIP
Computer Football
The Game of NIM

#SS5 — Card & Casino . . . . .$8.95ppd.
Slot Machine
Craps
At the Horse Races
Kena
Crazy Eights Card Game
Baccarat
Computer Blackjack
Yahtzee
Roulette

Super Sampler Diskette . . . . . .$5.00ppd.
Craps - A Las Vegas Dice Game
The Financial Wizard
Calculate Remaining Balance on a loan
Polygons - A Demonstration of Graphics
Computer Spelling Bee
Kena - A Number Guessing Game
Maxit - High Score Numbers Game
The Amazing Maze Generator
Blackjack - The 21 Card Game
The CIA Mystery Adventure

SUPER MAILING LIST
$14.95 Postpaid

Add, change, delete names, addresses and phone numbers with 8 category flags to select on. Prints lists or labels. Sort on zip or names. A random access tutorial in itself. A SUPER VALUE!

GOOD STUFF!

Looking for good low-cost programs for your computer, as well as good, solid information? You've found it!

Business, Financial, Games galore, Educational, Utilities and Graphics. They're all here! There are presently 12 disks and each has 7-12 programs. They are all menu-driven, listable and unprotected. Don't take our word for it, listen to what Dr. Michael Ecker, contributing editor to Soft Sector has to say: "I would recommend these programs as an excellent value, they are close to professional in quality at public domain prices . . . get all you can before Computer Solutions comes to its senses. I don't know how they do it!" With your order we will include our full catalog with 100's of products at discount prices and an issue of our information-packed newsletter.

★ SPECIFY COMPUTER TYPE WITH ORDER ★

COMPUTER SOLUTIONS
P.O. BOX 354
888 S. EIFERT
MASON, MICHIGAN 48854

(800) 874-9375 for Orders
(517) 628-2943 for Info. & Mich.

MONEY-BACK GUARANTEE
Phone Orders Welcome - Quick Service

#SS6 — Financial Disk $8.95ppd
The Financial Wizard
Linear Regression Analysis
Personal Budget Analysis
Complex Income Averaging for Taxes
Lease/Buy Advantages Comparison
Continuous Compounding of Money with Options
Calculate Future Value of an Investment
Determine Accrued Interest and Maturity of Bond
Calculate Remaining Balance of a Loan
Mean Variance & Standard Deviation Analysis

#SS7 — Education II. . . . . .$8.95ppd.
Fun with Math Drill
BOGGLE - The Word Game
SCRAMBLE - Word Skills Exercise
STORY - Vocabulary Fun
Basic Reading Skills
Biorhythm Plotter
Shopping Spree
Magic Square Generator
WOMBATS - Story Teller with Math & Vocabulary

#SS8 — Strategy II $8.95ppd
Mastermind - Computerized Code Craker
STRIKE 9 Number Strategy
TRAP - Trap the Computers Number
Rule your KINGDOM to fortune or famine
Defuse the Hidden Bomb!
Try to avoid getting the last Match
FOOTBALL - The keyboard Quarterback
Number REVERSE
The old game of DOTS against the Computer
Number Square

#SS9 — Adventure $8.95ppd
CIA - Central Intelligence Agency Adventure
MANOR - The Stonevill Manor Adventure
The Intergalactic Trader
LOSTGOLD - Help the lost miner find the gold
SURVIVAL - Marooned on the moon - Can You Survive?

#SS10 — Games II . . . . . .$8.95ppd.
Hunt the Willy Wumpus
Concentration
Acey-Ducey Card Game
A Number Guessing Game
Play Checkers against the Computers
Biorhythm Chart for Printer
Birthday Statistics
Computer Spelling Bee
Escape from Mars Adventure
Banner Printer

to the disk in the Standard Data Function mode (SDF). This is simply an ASCII character string without all the control characters that dBASE *uses. I have been unsuccessful in loading or merging such a data file to a shell prepared in* CalcStar *at home in the evenings.* CalcStar *keeps asking me for a password! No password was given in, or is coming from the* dBASE *SDF file and I set up no password for the* CalcStar *spreadsheet. Does this mean that no data can get into* CalcStar *without keystroking?*

Edward A. Diephaus
Gaithersburg, MD

A. Your question about loading "foreign" files into *CalcStar* is a little beyond the scope of "Business Sector." However, I can refer you to a book which contains a method of using the *MailMerge* function of *WordStar* to load data into a spreadsheet. I have not had the time to see if it will work specifically with *CalcStar*. If you would like to try it, the book is: *Getting the Most from WordStar and MailMerge, Things MicroPro Never Told You*, by M. David Stone (no relation, by the way), a Spectrum Book published by Prentice-Hall, Inc., Copyright 1984, ISBN 0-13-354382-X

Q. *I wish to enter the data (or any other text) in cell A1 and have that text automatically appear in several other cells. If I change the date in cell A1, I would like the date to automatically change in the several other cells.*

This is a simple task with numeric data but, after many hours of experimentation, I am unable to handle text data in the same manner.

I stress the word "automatically." I know how to copy text to any number of other cells in the immediate mode. I would like to change the date in cell A1 and have the new date appear in every other cell that contains the date — automatically after the recalculate command ;R.

Stan Campbell
Cincinnati, OH

A. *CalcStar* will not handle text in the manner you desire. The recalculate function ignores all text entries. This information was printed directly as a note in a *CalcStar* user's manual older than the one Sanyo is currently distributing. It would be nice if deletions in the manual were avoided when the program has not changed. The new manual has a nicer format, but evidently is missing some pieces of information about exceptions to *CalcStar* functions.

Q. *How do you select a group of records from a file and send them to a new data file when you need all fields and all data of the record to be included in the new file?*

I can use the technique that you sent me originally, but it would be a laborious job to do a ^R on 40 fields.

Is there a handbook on InfoStar *that I can purchase?*

Gene Gould, O.D.
Kittanning, PA

A. That letter sat gathering dust beside my computer as I searched for an easy answer to your problem. I would see it and think, "I've got to work on that, but it's going to take a lot of time. There's a column to get out, and I'd better answer an easier one first."

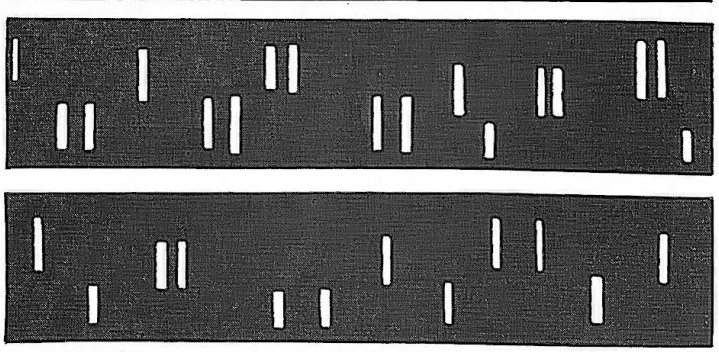
The months rolled by. Then one day out of the blue, I received at my work address a disk containing a piece of software that will solve your problems. It came unsolicited from Lawrence Taylor at Facts Online, P.O. Box 99367, San Diego, CA 92109, and is called *I.S. Manager*.

I.S. Manager is distributed as "shareware." The disk can be copied freely and is available at many user's groups and dealers. The manual, along with the program, is available from Facts Online and some dealers for $28. The software is very easy to use, even without the manual. Once you try it, I'm sure that $28 will seem a small contribution to send in gratitude, even if you weren't going to receive a manual in return.

I.S. Manager will let you restructure a data file — eliminate fields and their data, add blank fields, rearrange existing fields and their data, and duplicate fields and their contents. It will let you find and replace data. It will also let you pick some records from your data file and write them to a new one.

You asked about a handbook on *InfoStar*. If you do not already have them, I suggest you order the *DataStar* and especially the *ReportStar* Reference Manuals from your Sanyo dealer. I recently found and purchased a book named *Star Power* by Paul Garrison published by Tab Books Inc., copyright 1985, ISBN 0-8306-1742-6. It is supposed to cover all the *Star* programs from MicroPro, but it has been so long in the publishing process that it isn't nearly as useful as it could be. The section on *DataStar* may be easier for some to understand than the training manual. The section on *ReportStar* was written so soon after the program was introduced that all of the program did not run yet. Therefore, it will not be of much use to anyone. I have been reading sections of the book out of order in hopes that I could recommend it to readers of the column. Since I have not finished the book yet, I will not attempt to comment on the unread balance. Watch the column for further information about it or look it over carefully in the store before purchase.

(Charlotte A. Stone, office manager for the Detroit office of the Shaw/Walker Co., has been using a Sanyo computer in her daily work routine since October of 1983. Brian M. Stone has been using a variety of Sanyo computers since May of 1983. Charlotte and her husband, Brian, have been involved with computers since July of 1978 and presently own and use five computer systems on a daily basis, three of which are Sanyos.)



You can forget about having to beat the erasers, kids, when you practice solving your math problems on . . .

The Electric Blackboard

By Leonard Hyre

There are many reasons for praising the virtues of owning a computer. Among these, one reason that seems to have the greatest possibility for home use is that of home education. The Sanyo 550/555 series has many of the attributes needed to excel in this field. The spectacular graphics capabilities, text on Hi-Res screens, large amounts of memory and a flexible language base are all there.

There seem to be numerous variations of math drills available for the would-be student and many of them are excellent programs. But it seems to me that programmers tend to miss one important area of the advancing math student. When a student is first faced with the need to work multiplication and division problems with large numbers, the concepts of carrying remainders and the need to perform multiple functions on one problem are difficult to grasp. This program is an attempt to aid these students, leading them through each logical step required to solve a given problem.

In *The Electric Blackboard*, the student is shown the problem as it would appear on a blackboard. He or she is then led through the step-by-step solution of the entire problem, breaking it down into its many parts. I believe this graphic demonstration of the logic will help the student grasp the concepts involved more quickly.

The Electric Blackboard can also serve as a programming exercise for the novice BASIC programmer, as it incorporates many of the excellent graphics and text capabilities of the Sanyo BASIC language. I have made much use of graphics and color in the program (but we haven't left out the monochrome users). There is nothing, however, that would be beyond the grasp of a novice BASIC programmer. Also, I must point out for those of you with IBM PCs, I'm afraid your machines are just not "Sanyo compatible" enough for some of the powerful commands of Sanyo BASIC.

The program can be thought of as consisting of three separate main routines, plus a couple of smaller routines needed for housekeeping and such. The three main program sections are Classroom Scene, Multiplication and Division. In addition, we have routines for screen cleanup, titles, the menu, sound and delays.

In discussing the Classroom Scene section, I must first make a confession. I am a true believer in color and scenic depictions and, therefore, may seem to have gotten carried away a bit. If you think so, please forgive me, then get on with the typing.

The setting for the classroom is complete with a teacher's desk, a world

---

(Leonard Hyre works as a claims representative for the Social Security Administration. He has written several articles for THE RAINBOW and has written commercial programs for the TRS-80 Color Computer, the Apple II, the Commodore and the TI 99 computers. He may be contacted at P.O. Box 403, Cambridge, MD 21613; 301-228-0064.)

globe and flower, a picture of a rainbow over the mountains and, of course, the main feature we require, a large clean blackboard. It is not necessary to go into great detail in depicting these items. We only need to give the illusion of their presence to create the mood we want the screen to set up.

I have made liberal use of the DRAW and LINE commands, as well as CIRCLE and PAINT. Perhaps the trickiest part here is the PAINT command, since paint will flow from the point of origin until it reaches borders of the specified color. A bit of a leak here and you might end up with a 640-by-200 display of yellow on yellow, the whole thing trimmed in yellow! All of the drawing is done in the routine encompassing lines 600 through 790.

A return from the GOSUB 600 is made when the screen is finished and then an immediate call to another subroutine is made, this one at lines 810 to 825. At first glance, you might wonder why we needed to return to the front of the program just to come back to the lines following the lines we just returned from! If you will take another look, you will see that this second GOSUB calls the menu routine which we may need multiple times, as opposed to the first GOSUB, which draws the screen only one time per program use.

The other two main sections, Multiplication and Division, share much of the same type of programming and I will go into detail only on the former, it being easiest to follow.

We first determine what the problem to be worked is by obtaining two random numbers, in this case a multiplicand in the range 11 to 99 and a multiplier of less than 10. The problem is then written on the blackboard in standard math notation; that is, the same way a student would write it out on paper. The student is then led through the problem step by step. If any answer is incorrect, it is not accepted and the student tries again, assuring that the ultimate answer is always correct and can be associated with the steps needed to arrive at that correct answer.

From a programming point of view, the only tricky part here is manipulating numerics and strings to obtain the proper display and, at the same time, keep track of the right answers. Use of the powerful string-handling commands, RIGHT$ and MID$, as well as STR$, are used often. If you examine the routine line-by-line, the seemingly confusing combinations may soon make sense to you — a sure sign that "computerese" is becoming your second language.

The program is easy to use; after you have typed the program into BASIC and saved it, run it and follow the on-screen prompts. I believe you will find the program an excellent tool for learning these difficult math concepts. By the way, the problems can be made less difficult by changing the values of A and B in lines 180 through 185 or for division, lines 345 through 350.

Monochrome Users

If you have a monochrome monitor, you may have to take some further action to prevent a "flashing effect." There are three possible solutions to the problem.

1) Remove the back panel from your computer. You will find a bank of four DIP switches. Set them as follows: 1 off; 2, 3 and 4 on. No more flashing!
2) Another solution is to remove the offending colors from the program. I have provided a supplemental list of lines which should be changed to prevent flashing. However, this is not as good a solution as the first.
3) The ultimate solution! Your Sanyo has incredible color and graphics capabilities. Why not buy a color monitor?

A Final Word

If you have any problems using *The Electric Blackboard*, feel free to contact me in writing or by phone. I am always glad to help out in these matters. If the typing presents too much of a challenge for you, I will be happy to send you a copy for $5 to cover cost and shipping. Of course you can also obtain it on SOFT SECTOR ON DISK.

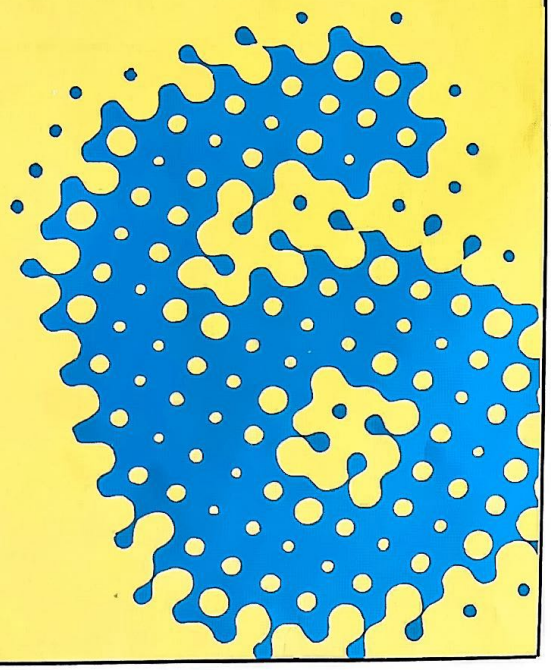
[Editor's Note: The graphics characters following the open quote marks in lines 620 to 630 of the listing are produced by pressing the GRAPH key in conjunction with the following keys:

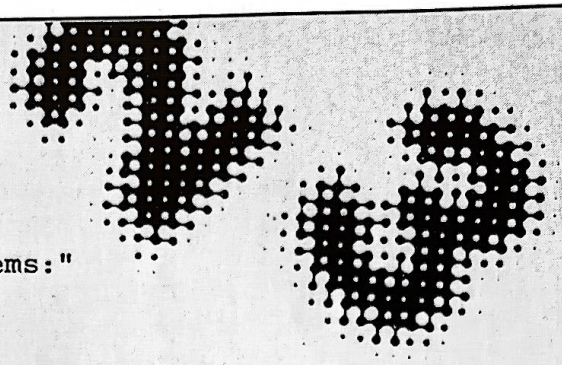
```
620 BK$="v==v==v==v . . .
625 BM$="-==-==-==- . . .
630 BD$="f==f==f==f . . .
```

If this seems confusing, it should become clear as you type in the characters. They will fit together just as in the listing.]

Listing 1: BBOARD.BAS

```
10 '************************************************
20 '*                                              *
30 '*          THE ELECTRIC BLACKBOARD             *
40 '*              by LEONARD HYRE                 *
50 '*          for SANYO  550/555 SERIES           *
60 '*              (C) MARCH  1985                 *
70 '*                                              *
80 '************************************************
90 '
100 '**** GO SET UP SCREEN ****
105 '
110 GOSUB 600
115 '
120 '**** GO SET UP MENU ****
125 '
130 GOSUB 810
135 '
140 '**** AWAIT MENU CHOICE ****
```





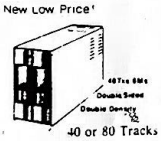
```
145 '
15Ø ON AN GOTO 17Ø,33Ø,575
155 '
16Ø '**** MULTIPLICATION MAIN BODY ****
165 '
17Ø GOSUB 845
175 LOCATE 4,6:COLOR 1:PRINT"MULTIPLICATION Problems:"
18Ø A=INT(RND(1)*99):A$=STR$(A):IF A<11 THEN 18Ø
185 B=INT(RND(1)*7)+2:B$=STR$(B)
19Ø LOCATE 4,42:PRINT"THE PROBLEM IS:";B" X "A
195 LOCATE 15,39:COLOR 7,Ø:PRINT A:LOCATE 16,37:PRINT "X  ";B:LOCATE 17,38:PRINT
 "DDDD"
2ØØ LOCATE 14,45:PRINT"Multiply ";RIGHT$(B$,1)" x ";RIGHT$(A$,1);" =";
2Ø5 C1=VAL(RIGHT$(A$,1))*VAL(RIGHT$(B$,1))
21Ø INPUT AN$
215 AN=VAL(AN$):IF AN<>C1 THEN LOCATE 14,61:BEEP:PRINT"    ":LOCATE 14,61:GOTO 2
1Ø
22Ø GOSUB 875:LOCATE 15,45:PRINT"WRITE IN ";RIGHT$(AN$,1);" and CARRY ";:IF C1<
1Ø THEN PRINT"Ø"; ELSE PRINT MID$(AN$,1,1);
225 LOCATE 18,41:PRINT RIGHT$(AN$,1):COLOR 6:LOCATE 14,4Ø:IF C1<1Ø THEN PRINT "Ø
"; ELSE PRINT MID$(AN$,1,1);
23Ø COLOR 7:LOCATE 16,45:PRINT"Multiply ";RIGHT$(B$,1)" x ";MID$(A$,2,1);" =";
235  C2=VAL(RIGHT$(B$,1))* VAL(MID$(A$,2,1))
24Ø INPUT AX$
245 AX=VAL(AX$):IF AX<>C2 THEN LOCATE 16,61:BEEP:PRINT"    ":LOCATE 16,61:GOTO 2
4Ø
25Ø GOSUB 875:LOCATE 17,45:PRINT"ADD ";AX;" + ";:IF C1<1Ø THEN PRINT"Ø";ELSE PRI
NT MID$(AN$,1,1);
255 IF C1<1Ø THEN AD=AX ELSE AD=AX+VAL(MID$(AN$,1,1))
26Ø INPUT AZ$
265 GOSUB 875
27Ø IF VAL(AZ$) <> AD THEN LOCATE 17,45:BEEP:PRINT STRING$(19," "):GOTO 25Ø
275 LOCATE 18,45:PRINT"WRITE IN ";AD:GOSUB 875
28Ø IF A*B<1ØØ THEN LOCATE 18,39:PRINT A*B;ELSE LOCATE 18,38:PRINT A*B
285 SYMBOL(3Ø,4Ø),"CORRECT! HOW ABOUT ANOTHER (Y/N)?",2,2,4,Ø
29Ø AK$=INKEY$:IF AK$=""THEN 29Ø
295 IF AK$="Y"OR AK$="y" THEN 3Ø5
3ØØ LINE(28Ø,1ØØ)-(56Ø,17Ø),Ø,BF:GOSUB 845:RUN 13Ø
3Ø5 LINE(28Ø,1ØØ)-(56Ø,17Ø),Ø,BF:GOSUB 875:RUN 17Ø
31Ø GOTO 31Ø
315 '
32Ø '**** DIVISION MAIN BODY ****
325 '
33Ø GOSUB 845
335 LOCATE 4,6:COLOR 1:PRINT"DIVISION Problems:"
34Ø A=INT(RND(1)*888)+1ØØ:A$=STR$(A)
345 B=INT(RND(1)*7)+2:IF B=< VAL(MID$(A$,2,1)) THEN 34Ø
35Ø B$=STR$(B):LOCATE 4,42:PRINT"YOUR PROBLEM IS ";A;" DIVIDED BY ";B;
355 COLOR 7,Ø:LOCATE 15,39:PRINT "_____"
36Ø COLOR 7:LOCATE 16,37:PRINT B$;"1";A$
365 COLOR 3:LOCATE 16,48:PRINT MID$(A$,2,2);" ";CHR$(246);B;" =";
37Ø DX=INT(VAL(MID$(A$,2,2))/B)
375 INPUT DY
38Ø IF DX<>DY THEN BEEP:GOSUB 875:LOCATE 16,48:PRINT STRING$(14," ");:GOTO 365
385 GOSUB 875:COLOR 7:LOCATE 14,41:PRINT DY;
39Ø COLOR 3:LOCATE 17,47:PRINT " ";DY;"x";B;" =";
395 INPUT DM
4ØØ IF DM<> DY*B THEN LOCATE 17,47:BEEP:PRINT STRING$(14," ");:GOTO 39Ø
4Ø5 GOSUB 875:COLOR 7:IF DM<1Ø THEN LOCATE 17,41 ELSE LOCATE 17,4Ø
```

```
41Ø PRINT DM:LINE(312,135)-(335,135),7
415 COLOR 3:LOCATE 18,48:PRINT MID$(A$,2,2);" -";B*DX;"=";
42Ø DO=VAL(MID$(A$,2,2))-(B*DX)
425 INPUT DP
43Ø IF DP<> DO THEN LOCATE 18,48:BEEP:PRINT STRING$(14," ");:GOTO 415
435 COLOR 7:LOCATE 18,41:PRINT DO;
44Ø COLOR 7:LOCATE 18,43:PRINT MID$(A$,4,1);
445 DO$=STR$(DO):DV$=DO$+MID$(A$,4,1):DV=VAL(DV$):GOSUB 875
45Ø IF DV<1Ø THEN LOCATE 19,48:PRINT DV;CHR$(246);B;" =";
455 IF DV>9 THEN LOCATE 19,47:PRINT DV;CHR$(246);B;" =";
46Ø DW=INT(INT(DV)/B):COLOR 3
465 INPUT DX:GOSUB 875
47Ø IF DX<>DW THEN LOCATE 19,47:BEEP:PRINT STRING$(14," ");:GOTO 45Ø
475 COLOR 7:LOCATE 14,41:DY$=STR$(DY):DX$=STR$(DX):DZ$=DY$+RIGHT$(DX$,1):PRINT D
Z$;
48Ø GOSUB 875:LOCATE 2Ø,48:COLOR 3:PRINT DX;"*";B;" =";
485 DU=DX*B
49Ø INPUT DT
495 IF DT<>DU THEN LOCATE 2Ø,48:BEEP:PRINT STRING$(14," ");:GOTO 48Ø
5ØØ COLOR 7:IF DX*B<1Ø THEN LOCATE 19,42:PRINT DX*B; ELSE LOCATE 19,41:PRINT DX*
B;
5Ø5 LINE(328,151)-(35Ø,151),7
51Ø COLOR 3:LOCATE 21,48:PRINT VAL(DV$);"-";(DX*B);" =";
515 DV=VAL(DV$):DS=DX*B:RM=DV-DS
52Ø INPUT RO
525 IF RM <> RO THEN LOCATE 21,48:PRINT STRING$(14," ");:BEEP:GOTO 51Ø
```


NEW
DISK DRIVES
STARTING AT
$129.00
WITH CASE & POWER SUPPLY
$199.95

$129
Your Choice
TEAC 55B 55F
48TPI·96TPI
Five Inch Single Sided Drives

New Low Price!



40 or 80 Tracks
1 2 Hght Teac/Panasonic

CALL FOR SALE PRICES

Speed 6 ms tk to tk
Capacity 360/720k
Tracks 40/80
Warranty now 1 YEAR

We carry only the finest quality disk drives - no seconds - no surplus
SATISFACTION GUARANTEED!! ALL DRIVES FULLY TESTED&WARRANTEED

Printers

$239.95 Printer Only

STAR MICRONICS
Gemini 10 x 120 cps SG10 $239.95
Gemini 15 x 120 cps, 15" car SG15 CALL
Powertype 18 cps ltr qual 329

Panasonic.
Panasonic 1090 CALL
Panasonic 1091 CALL

MONITORS
GORILLA 79.95

Amdek
★ Model 300
★ Color Composite (300 x 260)
$249.95

MODEMS
MODEMS - Cable included
Volksmodem 300 BAUD 69.95
Signalman Mark II 300 BAUD 129.95
Signalman Mark III 300/1200 BAUD 259.95

Single ps&case $44.95 Dual 1/2 ht ps&case ..$54.95

DISKETTES with free library case $17.95
Unadvertised Specials ..... $Call
Drives cleaned, aligned & tested $29.95

TECHNICAL STAFF ON DUTY. PLEASE CALL FOR ASSISTANCE

CALL US TODAY!! (617)234-7047
ORDER TOLL FREE 1-800-635-0300
DEALER & DISTRIBUTOR INQUIRIES INVITED (617) 234-7047

TRUE DATA PRODUCTS
195 Linwood Street, P.O. Box 546
Linwood, Massachusetts 01525
(617) 234-7047
HOURS MON SAT 9-6 (EST)

We welcome
• Visa / Master Charge
• Checks (allow 2 weeks for clearing)
• COD Add $2.00

(512) 657-2012
Wagner Bros.
SANYO
Software

• **Autotype** — unique software turns Sanyo Computer into electronic memory typewriter. **$59.95**

• **Spelling Quiz** — a self-teaching educational program for grades 1-8 ..... **$19.95**

• **Infocom** —
Zork I, II, III ..... **$33.95** each
Deadline **$38.95**
Cutthroat **$37.95**
and others ..... from **$33.95**

VISA
master charge

Add $5.00 for COD
Add 3% Visa or Mastercharge
Dealer Inquiries welcome
Shipping and Handling 3%—$3.00 Minimum

14008 Nacogdoches
San Antonio, Texas 78247

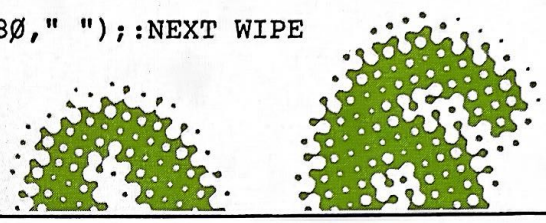
```
53Ø COLOR 7:LOCATE 2Ø,42:PRINT RM;
535 COLOR 6:LOCATE 14,48:PRINT"REMAINDER =";RM
54Ø SYMBOL(3Ø,4Ø),"CORRECT! HOW ABOUT ANOTHER (Y/N)?",2,2,5,Ø
545 AK$=INKEY$:IF AK$=""THEN 545
55Ø IF AK$="Y"OR AK$="y" THEN 56Ø
555 LINE(28Ø,1ØØ)-(56Ø,17Ø),Ø,BF:GOSUB 845:RUN 13Ø
56Ø LINE(28Ø,1ØØ)-(56Ø,17Ø),Ø,BF:GOSUB 845:RUN 33Ø
565 '**** END PROGRAM ****
57Ø '
575 COLOR 3,Ø:LINE(28Ø,1ØØ)-(56Ø,17Ø),Ø,BF:LOCATE 16,42:COLOR 3:PRINT"OK - NO HO
MEWORK TONIGHT!"
58Ø GOTO 58Ø
585 '
59Ø '**** THE CLASSROOM MAIN BODY *****
595 '
6ØØ COLOR ,7:CLS
6Ø5 COLOR Ø,4
61Ø '
615 '**** BRICK WALL ****
62Ø BK$="
625 BM$="
63Ø BD$="
635 LOCATE 12,1Ø:PRINT BK$
64Ø FOR X=13 TO 23:LOCATE X,1Ø:PRINT BM$:NEXT X
645 LOCATE 24,1Ø:PRINT BD$
65Ø '
655 '**** THE WALL BOUNDARIES ****
66Ø '
665 LINE(75,19Ø)-(Ø,2ØØ),Ø
67Ø LINE(59Ø,19Ø)-(639,2ØØ),Ø
675 LINE(75,9Ø)-(Ø,85),Ø
68Ø LINE(59Ø,9Ø)-(639,85),Ø
685 LINE(Ø,8Ø)-(639,8Ø)
69Ø LINE(75,9Ø)-(75,19Ø):LINE(59Ø,9Ø)-(59Ø,19Ø)
695 PAINT(5,15Ø),6,Ø:PAINT(634,15Ø),6,Ø
7ØØ '
7Ø5 '**** THE BLACKBOARD AND CLASSROOM DETAIL ****
71Ø '
715 COLOR Ø:LINE(28Ø,1ØØ)-(56Ø,18Ø),Ø,BF
72Ø LINE(8Ø,16Ø)-(25Ø,18Ø),1,BF:LINE(8Ø,18Ø)-(9Ø,19Ø),1,BF:LINE(24Ø,18Ø)-(25Ø,19
Ø),1,BF:LINE(84,162)-(246,178),Ø,B
725 CIRCLE(1ØØ,15Ø),12,Ø,1,,3:PAINT(1ØØ,15Ø),3,3
73Ø LINE(96,154)-(98,16Ø),6,BF:CIRCLE(98,148),3,Ø,1,,Ø:PAINT(98,148),Ø,Ø:CIRCLE(
1Ø2,152),4,Ø,1,,Ø:PAINT(1Ø2,152),Ø,Ø:LINE(225,15Ø)-(23Ø,16Ø),7,BF
735 LOCATE 19,29,Ø:COLOR 6,4:PRINT CHR$(5);
74Ø LINE(114,1ØØ)-(228,128),7,BF
745 LINE(116,1Ø1)-(226,127),Ø,B
75Ø LINE(116,124)-(136,12Ø),Ø:LINE-(148,124),Ø:LINE-(17Ø,119),Ø:LINE-(192,124),Ø
:LINE-(226,119),Ø:PAINT(117,125),2,Ø:PAINT(117,1Ø2),3,Ø:CIRCLE(14Ø,111),6,Ø,1,,6
:PAINT(14Ø,111),6,6
755 LINE(Ø,7Ø)-(639,7Ø),Ø:PAINT(5,72),4,Ø
76Ø  FOR RB=1 TO 6:CIRCLE(225,122),25+RB,.5,.75,,RB:NEXT RB
765 '
77Ø '**** PUT UP THE TITLE ****
775 '
78Ø SYMBOL(1Ø,1),"******  The Electric Blackboard  ******",2,1,4,Ø
785 COLOR 4,1:LOCATE 2,1:PRINT STRING$(8Ø,"_");
79Ø RETURN
795 '
```

```
800 '**** THE PROGRAM MENU ****
805 '
810 COLOR 0,7:LOCATE 4,36:PRINT"The MENU"
815 LOCATE 5,35:PRINT"1> MULTIPLY":LOCATE 6,35:PRINT"2> DIVIDE";:LOCATE 7,35:PRI
NT"3> SCHOOL'S OUT
820 AN$=INKEY$:IF AN$=""THEN 815 ELSE IF VAL(AN$) <1 OR VAL(AN$) >3 THEN 815 ELS
E AN=VAL(AN$)
825 RETURN
830 '
835 '**** WIPE OUT OLD SCREEN DISPLAYS ****
840 '
845 FOR WIPE=3 TO 8
850 COLOR ,7:LOCATE WIPE,1:PRINT STRING$(80," ");:NEXT WIPE
855 RETURN
860 '
865 '**** NOISE AS NEEDED ****
870 '
875 FOR DL=1 TO 300:NEXT DL:OUT &H38,100:RETURN
```

Listing 2: MONOMOD.BAS

```
100 ' ATTENTION MONOCHROME USERS
101 '
102 '
103 '
104 '******* MONOCHROME VERSION DIFFERENCES ******
105 '*                                           *
106 '*       If YOU DO NOT WISH TO MAKE THE      *
107 '*       DIP SWITCH CHANGES AS SUGGEST-      *
108 '*       IN THE ACCOMPANYING ARTICLE, A      *
109 '*       ALTERNATE IS TO EDIT THE PROG.      *
110 '*       AND MAKE CHANGES IN ALL OF THE      *
111 '*       FOLLOWING LINES AS  INDICATED.      *
112 '*                                           *
113 '*********************************************
114 '
115 '
175 LOCATE 4,6:COLOR 0:PRINT"MULTIPLICATION Problems:"
195 LOCATE 15,39:COLOR 3,0:PRINT A:LOCATE 16,37:PRINT "X  ";B:LOCATE 17,38:PRINT
 "DDDD"
225 LOCATE 18,41:PRINT RIGHT$(AN$,1):COLOR 3:LOCATE 14,40:IF C1<10 THEN PRINT "0
"; ELSE PRINT MID$(AN$,1,1);
230 COLOR 3:LOCATE 16,45:PRINT"Multiply ";RIGHT$(B$,1)" x ";MID$(A$,2,1);" =";
355 LOCATE 15,39:PRINT "      "
360 LOCATE 16,37:PRINT B$;"1";A$
365 LOCATE 16,48:PRINT MID$(A$,2,2);" ";CHR$(246);B;" =";
385 GOSUB 875:LOCATE 14,41:PRINT DY;
405 GOSUB 875:IF DM<10 THEN LOCATE 17,41 ELSE LOCATE 17,40
410 PRINT DM:LINE(312,135)-(335,135),3
```

```
435 COLOR 3:LOCATE 18,41:PRINT DO;
44Ø LOCATE 18,43:PRINT MID$(A$,4,1);
475 LOCATE 14,41:DY$=STR$(DY):DX$=STR$(DX):DZ$=DY$+RIGHT$(DX$,1):PRINT DZ$;
5ØØ IF DX*B<1Ø THEN LOCATE 19,42:PRINT DX*B; ELSE LOCATE 19,41:PRINT DX*B;
5Ø5 LINE(328,151)-(35Ø,151),3
53Ø COLOR 3:LOCATE 2Ø,42:PRINT RM;
535 LOCATE 14,48:PRINT"REMAINDER =";RM
54Ø SYMBOL(3Ø,4Ø),"CORRECT! HOW ABOUT ANOTHER (Y/N)?",2,2,Ø,Ø
6ØØ COLOR ,3:CLS
6Ø5 COLOR 2,Ø
72Ø LINE(8Ø,16Ø)-(25Ø,18Ø),2,BF:LINE(8Ø,18Ø)-(9Ø,19Ø),2,BF:LINE(24Ø,18Ø)-(25Ø,19
Ø),2,BF:LINE(84,162)-(246,178),2,B
73Ø LINE(96,154)-(98,16Ø),3,BF:CIRCLE(98,148),3,Ø,1,,Ø:PAINT(98,148),Ø,Ø:CIRCLE(
1Ø2,152),4,Ø,1,,Ø:PAINT(1Ø2,152),Ø,Ø:LINE(225,15Ø)-(23Ø,16Ø),3,BF
735 LOCATE 19,29,Ø:COLOR 3,4:PRINT CHR$(5);
75Ø LINE(116,124)-(136,12Ø),Ø:LINE-(148,124),Ø:LINE-(17Ø,119),Ø:LINE-(192,124),Ø
:LINE-(226,119),Ø:PAINT(117,125),2,Ø:PAINT(117,1Ø2),3,Ø:CIRCLE(14Ø,111),3,Ø,1,,1
:PAINT(14Ø,111),3,1
78Ø SYMBOL(1Ø,1),"******  The Electric Blackboard  ******",2,1,Ø,Ø
81Ø COLOR Ø,3:LOCATE 4,36:PRINT"The MENU"
85Ø COLOR ,3:LOCATE WIPE,1:PRINT STRING$(8Ø," ");:NEXT WIPE
```



It's Here!
PC LOGO™

PC Logo for the Sanyo MBC 550/555 Series is now available. PC Logo features include:

- full color turtle graphics with Sanyo Video Board
- word and list capability
- comprehensive tutorial and reference manual
- utility disk with over 30 sample programs
- only $149.95

To order PC Logo see your local software dealer or contact:

Harvard Associates, Inc.
260 Beacon Street
Somerville, MA 02143
Tel.: 617/492-0660

Orders only: 800/622-4070
800/942-7317 (IL only)

The Handicapper

Use your Sanyo to improve your performance at the track! These fine programs for **Thoroughbreds, Harness Horses** and **Greyhounds** combine the power of your Sanyo 550 series computer with the savvy of a veteran handicapper. Spend a few minutes entering data, and The Handicapper will rank the horses or dogs in each race. All the information is readily available from the Thoroughbred Racing Form, harness or greyhound track program. We even provide a diagram showing you where to get the data you need!

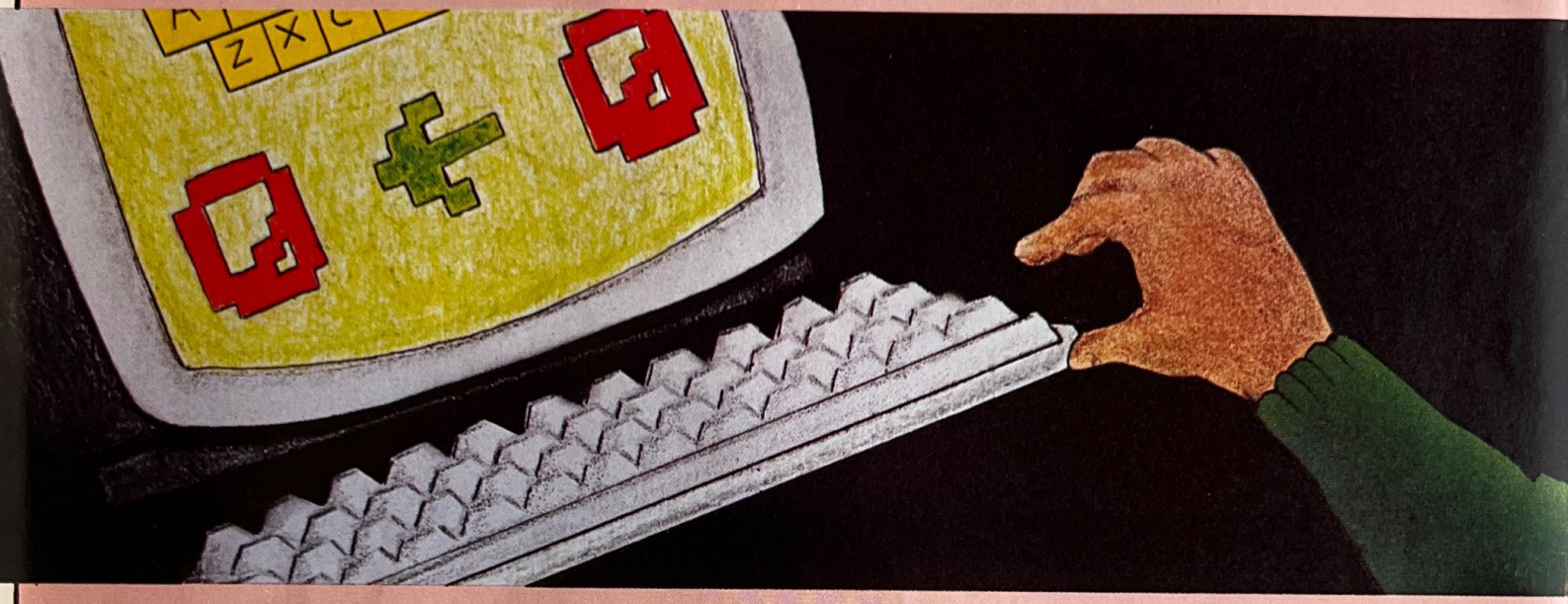
Horse racing factors include speed, class, past performance, post position, stretch gain, beaten favorite, jockey or driver's record, weight (for thoroughbreds) and parked-out signs (for trotters). Greyhound factors include speed, past performance, class, favorite box, kennel record, breaking tendencies, beaten favorite.

Complete instructions and wagering guide included. Thoroughbred, Harness or Greyhound Handicapper, only $49.95 each. Any two, just $74.95. All three only $99.95. Checks, Money Orders or VISA/MC welcomed.

Federal Hill Software
825 William Street
Baltimore, Md. 21230
Toll Free (Orders Only) 800-245-6228
For Information Call 301-547-1447

The next time your child wants to play at the computer with you, you can square off over this stimulating game of visual recall.

Challenge Of The Memory



Memory Match is a simple BASIC game which exercises your memory for letters and numbers. The object of the game is simple: Try to match the pairs of hidden numbers by selecting two squares on each turn. The program will run in 128K of memory, even with the use of the GET and PUT statements.

After typing the program into BASIC from the listing, type RUN and hit RETURN to start the game. A reasonable facsimile of the layout of the keyboard letters is shown at the top of the screen, with the scores of the two players in the bottom corners. The arrow in the middle of the screen shows whose turn it is, as well as prompting for your first and second choices.

Pressing any letter key, 'A' through 'Z,' will display the number hidden behind that square. If the two squares selected match, you score one point and get an extra turn. If the squares do not match, they are hidden away again, and the turn passes to your opponent.

There are 13 possible pairs hidden behind each game board — the numbers one through six in normal print, and one through seven in reverse print. Note that the two squares selected must match *exactly* to score; for example, a normal three will not match an inverse three. If you wish to pass your second choice on any given turn (to avoid giving more information to your opponent), press the space bar instead of a letter key. When one player matches seven pairs, the game ends. Pressing any key will start a new game.

Memory Mateh is simple enough for children of almost any age to play, even against adults (my 6-year-old beats me regularly). As no reading is required, even those children too young to know their letters and numbers can play by matching the letters on the keyboard to the screen layout, and by matching the colors and shapes of the hidden pairs. The program also serves to make the QWERTY keyboard layout seem a bit more familiar (and a little less bizarre).

For more enjoyment, you might try inserting the sound routines from *Run'Round* (December '84, Page 28), and programming a Bronx cheer for a mismatch, or maybe a fanfare or two when a match is found or the game is won.

Routines:

40	Initialize variable types and arrays
50	Set up square graphics
60	Set up functions and square locations, read letter offsets
70	Restart game, draw squares

(J. Weaver Jr. is a free-lance computer programmer, consultant and author. His recent works for the Sanyo 550 series include Mi-Term, Solitaire, Maz *and* Cornerman. *He is also the National Recording Secretary of CHART [Computer Hobbyists Against Raiders and Thieves], a national organization dedicated to the legal and ethical use of computer technology. He can be reached through CompuServe [71446,1362], MCI Mail [FactProg], or at WH Enterprises, 859 Winston, Monroe, MI 40161; 313-241-WHWH.)*

Match

By J. Weaver Jr.

80	Shuffle hidden pairs
90	Switch player up
100	Clear keyboard buffer
110	Get first choice, display it
120	Get second choice, display it
130	Check for match, hide squares if none
140	Add to score, erase squares, check for end of game
150	Clear keyboard buffer
160	Wait for restart
170	Print empty square
180	Print square with letter
190, 200	Print square with hidden number
210	Print player's score
220	Print arrow
230, 240	DATA for letter and number offsets

Arrays:

B	Board layout
O	Offsets for centering letters and numbers
S	Scores
X	X position of squares
Y	Y position of squares
Z	Graphics for square PUT

Variables:

A, I	General use
C1	Background color of hidden number
C2	Foreground color of hidden number
IK	Valid keys
J	Pair number of hidden number
UP	Player up
Z	Square selected
Z1	First choice
Z2	Second choice

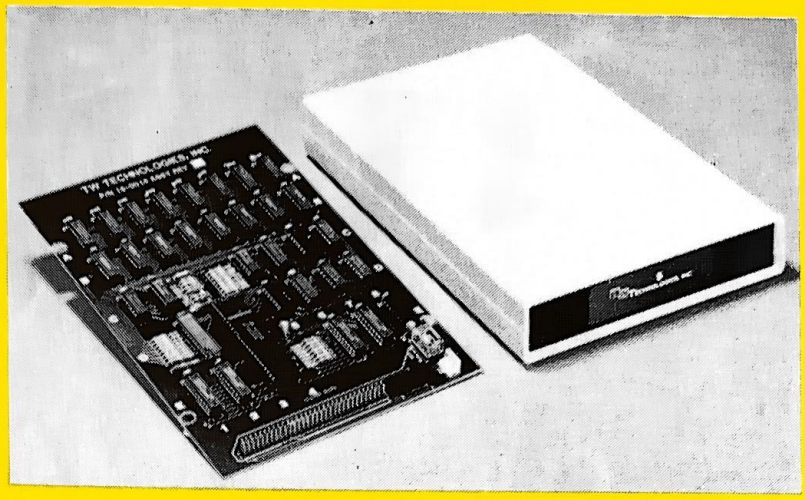
Functions:

FNR(A)	Returns a random integer between one and A
FNZ(A)	Returns the position in string IK of the character in I after converting the character to uppercase (returns zero if character is not found)

THE NEWEST

SANYO 550/555 SUPERCHARGER MEMORY EXPANSION BOARD

Available NOW!!



RAMPAC™

From TW TECH

The **SANYO PERIPHERAL SPECIALISTS**

PROVIDES UP TO 512K ADDITIONAL RAM MEMORY FOR USE OF LOTUS* AND OTHER POWERFUL PROGRAMS

- Self-contained for easy, quick installation.
- Complete with 256K/power supply/cables/software.
- No lengthy loss of computer use for installation as with some memory expansion configurations.
- Does not void SANYO* warranty.
- Compatible with SANYO video board and TW Tech DATAFILE*.
- Uses state-of-the-art 256K memory chips.
- Debugged/ reliable/economical.

AND STILL MORE FROM TW TECH—**HARD DISK** and **TAPE BACKUP SUPERCHARGERS** INCLUDING

- 10, 20, and 40 Megabyte Hard Disks for **ALL** CP/M **AND** MS-DOS computer systems.
- Internal shock-mounted Hard Disks for the MBC-775
- Streaming or File-By-File Tape Backup for MS-DOS computers

DEALER/OEM INQUIRIES URGED!

TW TECHNOLOGIES, INC.™

21636 North 14th Avenue, Suite A2, Phoenix, AZ 85027, (602) 581-0669

*SANYO is a trademark of Sanyo Corporation. LOTUS is a trademark of Lotus Development Corporation. DATAFILE is a trademark of TW Technologies, Incorporated.

The listing: MEMMATCH.BAS

```
1Ø '  MEMMATCH.BAS - Copyright (c) 1985 by J. Weaver Jr.
2Ø '  Permission to copy for personal use only
3Ø '
4Ø COLOR 2,Ø:CLS:DEFINT A-Z:DEFSTR I:DIM X(26),Y(26),B(26),O(34),S(2),Z(373)
5Ø LOCATE 1,25,Ø:PRINT "MEMORY MATCH    by J. Weaver Jr.";:COLOR Ø,2:LINE(Ø,12)-
(4,42),1,BF:LINE(57,12)-(61,42),1,BF:LINE(5,12)-(56,14),1,BF:LINE(5,4Ø)-(56,42),
1,BF:GET(Ø,12)-(61,42),Z:IK="QWERTYUIOPASDFGHJKLZXCVBNM"
6Ø DEF FNR(A)=(RND(1)*A)MOD A + 1:DEF FNZ(I)=INSTR(IK,CHR$(ASC(I) AND 223)):FOR
A=Ø TO 9:X(A+1)=A*64:Y(A+1)=12:NEXT:FOR A=Ø TO 8:X(A+11)=A*64+16:Y(A+11)=44:NEXT
:FOR A=Ø TO 6:X(A+2Ø)=A*64+48:Y(A+2Ø)=76:NEXT:FOR A=1 TO 34:READ O(A):NEXT
7Ø RANDOMIZE(S(1)*S(2)+1)*(VAL(RIGHT$(TIME$,2))+1):S(1)=Ø:S(2)=Ø:UP=1:GOSUB 21Ø:
UP=2:GOSUB 21Ø:FOR Z=1 TO 26:IF B(Z)=Ø THEN GOSUB 18Ø
8Ø B(Z)=Z MOD 13+1:NEXT:FOR A=1 TO 26:SWAP B(A),B(FNR(26)):SWAP B(FNR(26)),B(FNR
(26)):NEXT:UP=FNR(2)
9Ø UP=3-UP:GOSUB 22Ø
1ØØ IF INKEY$>"" THEN 1ØØ ELSE LOCATE 2Ø,33:PRINT "YOUR 1ST CHOICE?";
11Ø I=INKEY$:IF I="" THEN 11Ø ELSE Z=FNZ(I):IF B(Z)=Ø THEN BEEP:GOTO 11Ø ELSE Z1
=Z:GOSUB 19Ø:LOCATE 2Ø,38:PRINT "2ND";
12Ø I=INKEY$:IF I="" THEN 12Ø ELSE IF I=" " THEN Z2=Z1 ELSE Z=FNZ(I):IF B(Z)=Ø O
R Z=Z1 THEN BEEP:GOTO 12Ø ELSE Z2=Z:GOSUB 19Ø
13Ø LOCATE 2Ø,33:PRINT SPACE$(16);:FOR WT=1 TO 3ØØØ:NEXT:IF Z1=Z2 OR B(Z1)<>B(Z2
) THEN BEEP:BEEP:BEEP:Z=Z1:GOSUB 18Ø:Z=Z2:GOSUB 18Ø:GOTO 9Ø
14Ø BEEP:S(UP)=S(UP)+1:GOSUB 21Ø:B(Z1)=Ø:B(Z2)=Ø:Z=Z1:GOSUB 17Ø:Z=Z2:GOSUB 17Ø:B
EEP:IF S(UP)<7 THEN 1ØØ
15Ø IF INKEY$>"" THEN 15Ø
16Ø IF INKEY$="" THEN GOSUB 22Ø:BEEP:GOTO 16Ø ELSE 7Ø
17Ø PUT(X(Z),Y(Z)),Z:RETURN
18Ø GOSUB 17Ø:SYMBOL(X(Z)+O(Z)+1Ø,Y(Z)+5),MID$(IK,Z,1),6,3,1,Ø:RETURN
19Ø GOSUB 17Ø:J=B(Z):IF J<7 THEN C1=Ø:C2=J+1 ELSE J=J-6:C1=J MOD 7+1:C2=Ø
2ØØ LINE(X(Z)+8,Y(Z)+4)-(X(Z)+53,Y(Z)+26),C1,BF:SYMBOL(X(Z)+O(J+27)+1Ø,Y(Z)+5),C
HR$(J+48),6,3,C2,Ø:RETURN
21Ø LINE(UP*472-472,114)-(UP*472-3Ø5,197),Ø,BF:SYMBOL(UP*472-472-O(S(UP)+27)*8*(
UP=2),114),CHR$(S(UP)+48),24,12,3,Ø:RETURN
22Ø LINE(236,126)-(4Ø3,185),Ø,BF:SYMBOL(236,114),CHR$(28-UP),24,12,2,Ø:RETURN
23Ø DATA 3,Ø,Ø,Ø,3,3,3,3,Ø,Ø,3,3,Ø,Ø,Ø,3,Ø,Ø,Ø,Ø,Ø,Ø,3,Ø,Ø,Ø,Ø,3,3,3,Ø,3,3,3
24Ø '    Q W E R T Y U I O P A S D F G H J K L Z X C V B N M Ø 1 2 3 4 5 6 7
```

§

PERIPHERAL PRODUCTS DISTRIBUTING

- **DATA COMMUNICATION SPECIAL!**
  Get online now with an RS-232, the volksmodem 300 baud and the envoy communications software. **$139.00**
  With 1200 baud volksmodem **279.00**

- **WHY SHOULD YOU BUY FROM US?**
  Same day shipping (when order rcvd by 2:00 mst)
  Free shipping via UPS ground
  No additional charge for MC, VISA or COD orders
  Overnight and 2 day air services available

- **RS-232** interface for the MBC-550 at an unbeatable price. Top quality with full warranty. **$45.00**
- **BATTERY BACKED-UP REAL TIME CLOCK** for the MBC-550. Keep the correct date and time when the power is off. Not affected by disc I/O like the internal clock is. Includes software. **89.00**
- **MEMORY** upgrades. Prime 150ns 4164 chips.
  64k **22.00**
  128k **36.00**
- Volksmodem 300 — 59.00
- Volksmodem 1200 — 199.00
- Envoy Datacomm Software — 44.00

PERIPHERAL PRODUCTS DISTRIBUTING
P.O. BOX 11986
TUCSON, ARIZONA 85734

(602) 881-4280
Allow 18 days for personal checks
AZ residents add 7% tax

INPUT/OUTPUT

TIM PURVES
Soft Sector Contributing Editor

Q. *I am trying to locate a BASIC compiler for the Sanyo 550/555 series computer. Does a compiler exist for the machine?*

William Rympalski
Selden, NY

A. I have used the IBM Microsoft version without any problems. The only shortcomings are the fact that it doesn't support any of the color or graphics commands available on the Sanyo. I have talked to a company that is in the process of writing a compiler for the Sanyo. However, a release date had not been set at that time.

Q. *In the September issue of SOFT SECTOR you listed the pin-outs of the RGB monitor. I have had some difficulties in trying to wire a cable to connect the Sanyo to an IBM color monitor. I think my problem stems from the fact that the Sanyo doesn't have an intensity signal. One would think that it would still work except that you would have a weak picture, but the best I can get is a picture that scrolls wildly out of control. Is there a simple way to cause this match to work?*

David Allen
Arlington, VA

A. The reason that most IBM color monitors don't work on the Sanyo is that they expect a positive sync signal, and the Sanyo produces a negative sync signal. Some monitors, like the Sanyo CRT-70, are able to adapt on the fly to whatever signal is coming in. That is why the CRT-70 works with the Video RAM Board, the standard Sanyo system and the IBM. Monitors not capable of this feat are incompatible with the Sanyo unless special circuitry is constructed.

Q. *While attempting to write a program to handle interrupts from the RS-232 USART, I noticed that this causes a complete freeze of operation. Is there any chance that the Sanyo uses this interrupt (250) for operation, and that it is impossible to set up the USART for interrupt-driven input/output?*

Douglas Kent
Laurel, MD

A. It is both possible and desirable to write an interrupt handler to manage the data coming in from the RS-232. Two communications programs that I know of (*Term123* and *Mi-Term*) both use an interrupt handler to capture data coming in from the RS-232. Without seeing the source code to the program you are writing, I would guess that you probably have some small error in the way you are setting up the interrupt vector.

Q. *Is it possible to add a second serial port and a second parallel port to the Sanyo?*

Ricardo Bendana
Miami, FL

A. I don't know of a company that sells a second serial or parallel board for the Sanyo. The Sanyo has an internal

62-pin buss that resembles the IBM buss, so you could, in fact, build an interface card yourself.

Q. *There are many utilities such as (*CopyWrit, COPYIIPC, Backup15, *etc.), available for the IBM PC, which will allow you to make backups of copy-protected software. Is there one available for the Sanyo?*

Gregory Morrison
Ft. Huachuca, AZ

A. First off, let me state that I don't condone the idea of copy-protected diskettes. Hence, there would not be a need for copy programs. I have always believed in the honesty of my fellow man, and that he wouldn't pass out the software that I have worked so hard on. Of course, there are the inconsiderate few who will still give it out, protected or not.

However, some software authors feel that they should protect their hard work and copy-protect their products. I respect their right to do this.

As for a copy program for the Sanyo, I must say that I know of none.

Q. *I am told by one Sanyo dealer that putting in a stronger power supply will make my Sanyo 555 run faster, such as when moving blocks in* WordStar. *Another has told me that the power supply has nothing to do with my*

128K MEMORY 29.95!

362k drive	$ 119	1200/300B modem	$ 279
810K drive	129	300 baud modem	$ 75
DS-DOS+ 2.11	39	(modem comes w/software)	
6'keyboard cable	17	joystik port xtender	17

New Software: BIBLIOGRAPHER $ 49.95 only

Maintains bibliography in different styles for research papers and books. No more hand-sorting or retyping. Powerful and easy to use; compatible with most word-processors.

KYNTEK MARKETING

P.O.Box 13070, Minneapolis, MN 55414; phone: 612-379-1020

Visa, MC add 3%. Personal/company check allow 10-15 days to clear. No COD. In MN add 6% tax. Add 3% for shipping. $ 3.00 minimum.

SEND SASE FOR THE LATEST LIST OF IBM SOFTWARE THAT RUN ON SANYO--FREE (a $ 4 value).

The 768K SOLUTION
By John Domingues

512K RAM board	$260.00
256K RAM board	$180.00
Board with logic no RAM	$100.00
Bare board	$ 40.00

NEW LOW PRICES

PLUGS RIGHT IN

No C.O.D.'s

Guaranteed

Thumper Productions
3550 Londonderry Ln. S.W.
Roanoke, Virginia 24018

(703) 774-1484

The TOP FREEFORM FILER

Special Introductory Price: $99.95
The Premier Text/Filing Program!

SOFT SECTOR MAGAZINE SAID: No other filing program 'can match the abilities and capabilities' of the FREEFORM FILER for 'applications that require a lot of text, very variable search criteria, speed and efficiency.'

UNIQUE CAPABILITIES:

✓ **THE OBJECTIVE:** Designed for busy and creative individuals who want the **FREEDOM** to randomly store information, but need the **POWER** to retrieve that information in seconds.
✓ **THE KEYWORD SYSTEM:** As you enter or edit your text, you can select any word as a **"KEYWORD"** or **"KEYPHRASE."** Each **"CARD"** can contain as many as ***117 KEYWORDS, and up to nine pages*** of text similar to a 3" x 5" card, with no field restrictions. Each **"FILE DRAWER"** can contain up to 32,767 pages!
✓ **THE EDIT:** Includes an onscreen editing menu, word wrap, moving lines within a page, and card duplication.
✓ **THE SEARCH:** Search for the **Card Title, KEYWORD,** or a ***combination*** of both. Plus, ***"WILD CARD SEARCHES"*** save time!
✓ **THE RESULTS: List** the titles of cards found in the search, **print** the cards, or **write** them to a disk file for later printing or use with a word processor.

GIVE YOU MORE ABILITIES:

★ **BUSINESS:** Appointments, office phone and address indexes, inventory, service calls, vendor lists, and sales orders.
★ **ATTORNEYS:** Find the cases affected by new court decisions.
★ **DOCTORS:** List all patients affected by new medications.
★ **WRITERS AND RESEARCHERS:** For indexing, cross-referencing or cataloging.
★ **PERSONAL:** The possibilities are endless . . . art and coin collections, bill paying, income tax records, and home inventory.

NOTE: The ***FREEFORM/FILER*** integrates data into the ***"POWER MANAGER."*** **Requires 64K and at least one disk drive.**

TOTAL OFFICE PLANNING
TOP SOFTWARE
presents
The TOP POWER MANAGER

Special Introductory Price: $199.95

SOFT SECTOR MAGAZINE SAID:

"TOP/Power Manager was designed with the user in mind. It allows the user to build simple or complex structures with minimal effort. This in turn allows the end user to utilize time more efficiently making business decisions, and less time making database decisions."

"A powerful and easy-to-use system. The Sorting/Selecting and Report Generating capabilities are excellent. TOP/Power Manager is a database management system designed to meet the end user's needs."

POWERFUL CAPABILITIES:

✓ A greater ***STORAGE CAPACITY*** than higher-priced programs. Each database can contain 32,767 records, with up to 150 fields in each record and 50 characters in each field.
✓ This menu-driven program has a real ***ease-of-use*** and has ***SORT and REPORT GENERATION*** capabilities more ***POWERFUL*** than many of the hard-to-use databases.
✓ ***SORTING*** on any field or on a combination of fields. Plus, extra power from the ***"OR SORT"*** and descending sort features.
✓ Intricate math ***CALCULATING*** between fields, plus the ability to do ***TOTALS*** and ***COLUMN AVERAGES***.
✓ The ***POWER MANAGER*** comes with an extensive Tutor.

GIVE YOU MORE ABILITIES:

★ ***POWER MANAGER*** can create ***CUSTOMIZED LETTERS, INVOICES, COLUMNAR REPORTS, OR LABEL FORMATS!***
★ Use the ***Report Generator*** feature with a text editor to write ***PERSONAL LETTERS to a LARGE GROUP*** of individuals who meet the geographic, date or monetary criteria you select!
★ ***PUT THE POWER MANAGER TO WORK FOR YOU to do:*** customer mailings . . . past due notices . . . invoicing . . . sales analysis . . . inventories . . . credit, insurance and employee records, client profile reports, tracking stock portfolios, and much more.
► ***THE POWERFUL BOTTOM LINE:*** We take the competition head on, and The ***POWER MANAGER*** is at the TOP of its class!

Requires 128K. TOP programs run on the Sanyo MBC 550 and 555, and also are available for IBM and compatibles.

► **ORDERING INFORMATION: TOP SOFTWARE**
2431 E. Douglas • Wichita, Kansas • 67211
► **OR CALL TOLL-FREE: 1-800-255-1382 Ext.47**
Call between 7 a.m. and 7 p.m. CST. We accept VISA, MC, AMEX, money orders and checks. Add $3 shipping and handling. NOTE: TOP SOFTWARE, formerly TMP, is a division of The United Software Co.

computer's speed. What will adding a larger power supply really do?

Michael Young
Honolulu, HI

A. The power supply has nothing at all to do with the speed of your computer. The reason for putting in a larger power supply is if you have a lot of expansions, like 512K of memory, an 8087 co-processor, double-sided drives, or a video board. The Sanyo power supply is only marginally adequate with a lot of extras added on.

Q. *Is there any way possible to use a color composite monitor with the Sanyo and get a color display?*

Willam Pierce
Kitts Hill, OH

A. The Sanyo 550/555 composite video signal is only a black-and-white output. The only real way to get a color display out of the Sanyo is by using an RGB monitor.

Q. *When I access the local university's VAX system via modem, I can't get graphics to appear on my screen. When I login at the university on one of the terminals, I get graphics. Is there a solution to this?*

Robert Newcomb
Muncie, IN

A. The problem is that the communications software you are using doesn't support the type of terminal your local university uses. First, find out the type of terminal you use at school and then look for a communications package that supports it.

Q. *I have recently purchased a Sanyo video board. When using the board, there is constant trash on the left-hand side of the screen. Also, I haven't been able to get* Lotus 1-2-3 *to run. The program starts to load and then the cursor moves to the upper left and the system "hangs." I am using A-OK DOS4.*

Robert Wright
League City, TX

A. The constant noise on the left-hand side of the screen is a timing problem, inherent in the Sanyo video board. It is caused when the CPU and the CRT access the video memory at the same time. The reason *Lotus 1-2-3* doesn't load and run is because the disk read routines are returning the wrong error codes. Because of this, the protection scheme inside of *Lotus* fails, which causes the system to hang.

(Tim Purves is an expert on the Sanyo 550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any technical questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059)

SANYO 550 EXPANSION BOX

THIS WILL ALLOW USER TO PLUG SPECTRUM AND SOME IBM* BOARDS, FOR EXPANDING YOUR SANYO.

495.00
INTRODUCTORY OFFER

DISK DRIVE		MEMORY UPGRADE	
TEAC 55B	112	64K (150NS)	16.95
TEAC 55F	119	128K (150NS)	36.95
ACCESSORIES		**BULK DISK**	
8087 APU CHIP	129	20 SS/DD DISKS	19.00
VIDEO BOARD	159	20 DS/DD DISKS	23.00

SOFTWARE BY SPECTRUM SOLUTIONS

Q-BREAKER 24.95
UNPROTECTS PROTECTED BASIC PROGRAMS SAVED FROM SANYO BASIC.

LOGMASTER 24.95
KEEPS TRACK OF COMPUTER USAGE FOR BUSINESS AND TAX PURPOSES

SPECTRUM UTILITY PAK 29.95
LOTS OF UTILITIES LIKE MUSIC, ALARM CLOCK AND FAMOUS HACK COPY WHICH COPIES MANY PROTECTED PROGRAMS FROM LEADING MANUFACTURERS

TYPEWRITER 19.95
USE YOUR SANYO AS A TYPEWRITER YOU ONLY NEED TO KNOW TWO COMMANDS.

MASTERBRAIN 24.95
A GAME OF SKILL AND CHALLENGE BE THE MASTERBRAIN!

DEALER GRAPHICS DEMO 29.95
THIS AMAZING GRAPHICS DEMONSTRATOR WILL SELL SANYO BY SHOWING YOUR CUSTOMERS THE SUPERIOR GRAPHICS ABILITY OF THE SANYO

DEALERS! CALL FOR INFORMATION ON OUR MAILING LIST SERVICE
"ENTER SPECTRUM SWEEPSTAKES"
CALL FOR DETAILS
DEALER AND DISTRIBUTOR INQUIRES INVITED

SPECTRUM SOLUTIONS

(513) 236-6527 • P.O. BOX 246 • DAYTON, OHIO 45409

PRICES MAY REFLECT A 3% CASH DISCOUNT. MC & VISA. MONEY ORDER. CASHIERS CHECK ACCEPTED. PERSONAL OR COMPANY CHECKS REQUIRE 2 - 3 WEEKS TO CLEAR. SHIPPING & HANDLING FEE EXTRA. OHIO RESIDENTS ADD 6% TAX. RESTOCKING FEE OF 20% FOR ALL RETURNED MERCHANDISE

INVESTMENT GRAPHS/ANALYSIS

Your Sanyo Computer and Software can help you make investment decisions by tracking price history.

Files: Exchanges, Stocks (or bonds, options, indexes or other price sensitive investments, Trades and History.,
Tracks and displays, in a graphic form, volume, High, Low, Last and average price over a selectable period. Projects stop loss and target sell points. Calculates PE and Yield at Cost and Market.

Includes: *Two Sanyo Basic programs, unprotected.
*Four DataStar file definitions.
*Three ReportStar definitions.
*Sample Files. Sample BATch file.
*Documentation in a WordStar file.

Offer expires Sept. 30, 1985
$50.00 for Disk and Installation instructions, sent via AirMail. Attn: Roger L. Boese, Pacific Systems Limited, 1-1-21 Shiroganedai — 608, Minato-ku, Tokyo 108, Japan. Tel: (03) 444-3515.

SCRIPTURE MEMORY PROGRAM
for the SANYO 55X

Using a method commonly taught by the Navigators, this program includes:

Current and Back Reviews
Graphs to tell you how well you are doing
Scratch Pad for typing out verses or just reviewing orally
Options for reviewing missed verses
Verses can be sent to printer to take with you
Word Search thru Topic, Ref. or Verse
Excellent documentation

Cost: $25.00 includes shipping & handling. If you want a Back Review file to come with same verses found in the Navigator's Topical Memory System, include additional $5.00 and indicate whether you want KJV, NASB, RSV, NIV, or NKJV.

Send check or money order to:

Bill Branham
127 Randall St.
Reinbeck, IA 50669

DS-DOS PLUS 2.11
by Tim Purves

80 track drives, 10 sector formats, 512K memory, and IBM graphics are only a few of the exciting features exclusively in DS-DOS PLUS 2.11. This MS-DOS upgrade is specifically designed to support 80 track drives on your Sanyo. In addition, it allows for 10 sector formats on both 40 and 80 track drives (single or double sided). And that's not all; not only does DS-DOS support the new SANYO VIDEO RAM BOARD, but makes switching between normal graphics mode and IBM graphics a breeze. A single DOS command toggles between the two modes instantly. And for versatility, DS-DOS is unsurpassed; it can control any combination of 40 and 80 track drives, read or write 8, 9, and 10 sector formats on 40 track drives, handle up to 512K memory, and even remember the date on reset. An extra 11 utilities help you use your system better, and include new DISKCOPY and FORMAT routines, rewritten to be super-fast and super-friendly through menu-driven operation. Don't settle for a DOS that's just "OK." Take a closer look at DS-DOS 2.11: the one that set the standard time and time again.

Requires MS-DOS 2.11 **$49.95**

MI-TERM by J. Weaver Jr.
NO other communications program for the MBC-550/555 can make THESE statements:

SIMPLE TO USE: NOTHING to memorize. Every command is accessed with function keys, and is on-screen in plain English AT ALL TIMES.

NO LONG WAITS: NO overlay loading - the entire program is only 13K long! Menus are concisely written on a single line.

9 TRANSFER MODES: transfer files direct from disk with ANY remote system. Supports XMODEM and DFT (SDT) protocols for error-free communication. Also includes the new SXX format - send binary files as electronic mail messages, with 2 levels of checksums, extraneous character trapping, even embedded comments!

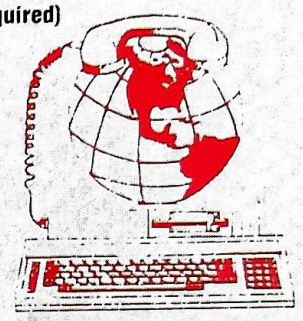
SIMPLE AUTOLOGONS: typing "MITERM" from DOS can automatically load your presets, open a disk buffer, and autolog onto your favorite system, with NO ADDITIONAL KEYSTROKES!

DIRECT SUPPORT: call the author directly with your questions!

Of course, MI-TERM is written entirely in super-fast 8088 machine language exclusively for the Sanyo 550/555, and has one-key printer, echo, linefeed and buffer toggles, 15 definable preset keys, automatic buffer save to disk, on-line parameter changes, 9600 baud support, screen color options, directories, file deletion, XON/XOFF support, and much more.

SET YOUR COMPUTER FREE FOR ONLY $79.95

128K DISK (RS-232 Modem/Port required)



PICASSO
by Bill Dunlevy

With PICASSO, the only 100% MACHINE LANGUAGE graphics program, power and simplicity is at your command. Pictures created with PICASSO appear in Time Bandit, the ultimate visual feast, and have been on the cover of Soft Sector — Twice! Whether for marketing, design, or simple creative pleasure, PICASSO is guaranteed to knock your smocks off!

- 100% Machine language!
- Rubber Band Graphics
- Two FULL-SIZED screens to draw on.
- EASY; no control keys to memorize!
- Pick from 64 colors, or mix your own.
- Use brushes and densities for special effects—even air-brushing!
- SMART Fill uses multi-color patterns and any combination of stop colors.
- Draw ANY polygon; from triangles and hexagons, to ovals or perfect circles!
- Stamp system lets you copy, move, save, and flip parts of your pictures.
- Use Stamps in your own BASIC or machine language programs!
- Use stamps in C & Pascal with Graphpac

256K SANYO MBC-550/555 (Joystick recommended) $99.95

DI:
by J. Weaver Jr.

Here's the advanced directory for your advanced 2.11 DOS! List sorted directories of ALL files—even on sub-directories and hard drives! Versatile switches let you list and sort by any attribute, including Size or Date. You can even reverse sort orders or list all files EXCEPT those specified! DI makes "house-keeping" simple and safe; true MOVE and DELETE functions work on any file group with Yes/No prompts for each file. DI can instantly locate any file anywhere on a drive, even if the sub-directory is unknown: a must for hard drives! There's even a HELP menu for all its unique funtions!

Requires Sanyo 550/555 and DS-DOS PLUS 2.11 OR MS-DOS 2.11 $24.95

CORNERMAN by J. Weaver Jr.

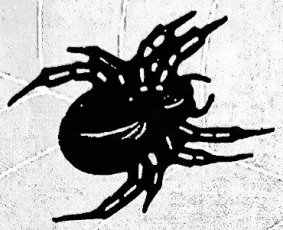
Tired of wrestling with a sloppy desk littered with notepad, calendar, address book, calculator, et cetera...? Presenting CORNERMAN, the perfect ringside manager. CORNERMAN waits in memory while you use other programs, such as word processors, utilities, and even games! Then when you need to make a calculation or leave a note, CORNERMAN is instantly at your side. With a single keystroke the program appears! CORNERMAN will leave notes for you, do mathematical problems (including conversions between decimal, HEX, and binary!), instantly recall names and phone numbers (even dial for you!), and much more. Once you've finished with CORNERMAN, He quickly departs, putting you back into your program without disturbing a single item. While Sidekick (tm) works fine on the PC's, it doesn't help your Sanyo at all. Hire the perfect ringside manager; put CORNERMAN on your side today!

128K Sanyo 550/555 required **$39.95**

MichTron
576 S. Telegraph
Pontiac MI. 48053
Orders and Information
(313) 334-5700

With this set of simple graphics commands, your youngsters will be snared into the intricate web of computer programming.

Spider For Sanyo



By Dave and Patti

The current rage among those who use computers in elementary education is the graphics-oriented language, LOGO. Students are especially intrigued by the special form of graphics used by LOGO and its cousin, PILOT — turtle graphics. This article will provide you with some tools for experimenting with turtle graphics without leaving the familiar Sanyo BASIC environment. We call our package of BASIC subroutines "spider graphics," because the fine Sanyo graphics are more reminiscent of a spider leaving a trail of multicolored silk than of a turtle roaming about with a pen.

In the standard graphics provided by BASIC and most other languages, all graphics objects (lines, points, circles, etc.) are located with reference to a single Cartesian coordinate system. The origin is in the upper-left corner of the screen, with the X coordinates increasing toward the right and the Y coordinates increasing toward the bottom.

In turtle graphics, objects are located with reference to an imaginary creature which itself has variable location and orientation, and does the necessary calculations to change these variables in response to programmer or user input. To draw two lines at a certain angle to one another, for example, the programmer does not have to calculate (or even design an algorithm to calculate) the Cartesian coordinate line end points which would result in the desired angle. All he has to do is have the turtle draw one line in its current direction, turn the specified number of degrees, and draw another line of the desired length. The turtle carries a selection of colored pens and can execute the various commands while holding any (or none) of these pens to the drawing surface. Various turtle senses can be

(Dave Neuendorf holds a B.S. in chemistry, an M.S. in metallurgy, and is currently employed as an extractive metallurgist. He programs in 6502 and 8086 assembler, BASIC and FORTH. Dave and his wife Patti, a computer analyst, have established a software development firm, NeuSystems. The author may be contacted at 281 Continental Dr., Pottstown, PA 19464; 215-327-2970.)

GRAPHICS BASIC

Neuendorf

provided, allowing graphics objects to be positioned or scaled with reference to whatever is already on the screen.

The spider graphics system (Listing 1) is a package of Sanyo BASIC subroutines implementing 10 turtle graphics commands. Each subroutine updates the necessary location and orientation variables so the next routine to use the spider can assume that it knows the correct current values. Like an actual turtle graphics language, the system does a good deal of trigonometry that would ordinarily have to be done by the programmer.

To use spider graphics, you need to incorporate Listing 1 in your BASIC program. Before any of the spider commands will work, the system must be initialized by executing all of the code up to Line 290. After initialization, the system will jump over the actual spider routines and reenter your own program.

For the time being, we suggest that you just type in and save Listing 1 and experiment with the short demonstration routines provided in the other listings. The demonstrations are heavily laced with REMarks, so you should be able to understand them using the listings with the spider graphics command and variable descriptions in tables I and II.

Various demonstrations may be merged with the main spider graphics program already in RAM by using the MERGE command with the appropriate demonstration filename (for example, MERGE "STARS"). These demonstrations make extensive use of looping to form interesting shapes by repeatedly varying certain aspects of the spider. Some complex shapes may be generated with only a few lines of code in this manner.

The LOOK command is by far the most complex, and requires a few special notes. Its purpose is to sight along a line from the spider's current location and find the coordinates of the first non-black pixel "seen." You will soon discover that this command is rather slow. Since the LOOKing time is proportional to the distance LOOKed, you should use it only at relatively short ranges wherever possible. Not too short, though, because LOOK disregards the first three pixels in the spider's line of sight! This feature is a compromise to prevent false readings when the line of sight is at a low angle to a colored line passing through the spider's position. You can modify this behavior, if you do not like our compromise, by changing lines 870 through 890.

There is a simple three-step process for adding your own commands to the system. First, add the command name to the list in lines 70 to 160 and assign the command a number. Write a subroutine to execute the command and insert it between lines 1610 and 2000 (RENUMbering as needed, or course). Finally, add the line number of your new subroutine to the ON/GOTO statement in Line 320. Make sure that your subroutine updates the spider's direction (TDIR, degrees clockwise from 3 o'clock) and location (TX and TY) if these values change during the execution of your routine.

A note about the graphics power of Sanyo BASIC is in order at this point. Look at the code for the ASPECT ratio toggle command in lines 1600 through 1610. This command is used to correct for the tall, narrow pixel shapes and "square up" the graphics. What could have been some complicated and voluminous programming is reduced to a simple WINDOW statement. All we have to do is tell BASIC how many world coordinate units in the Y direction (450) we want crammed into the 200 units of the screen coordinate system. BASIC then automatically adjusts every PSET or LINE statement without our giving it another thought! This is real power, and we congratulate Sanyo.

We hope you enjoy experimenting with this system. If you come up with some interesting or useful spider graphics programs or enhancements (such as extra commands), please consider sharing them with other SOFT SECTOR readers.

Table I. Spider Graphics Command Reference Sheet

The current spider location is given by TX and TY, color by TPEN.

Command Name	Description and Procedure for Use
DRAW	Draws a line from the current spider location in the current spider direc-

	tion, using the current pen color. Length of the line to be drawn is found in LLEN. `COMMAND=DRAW:LLEN=37:GOSUB 320`
DRAWTO	Draws a line from the current location to a specified point. Coordinates of the destination are found in XTO and YTO. `COMMAND=DRAWTO:XTO=375:YTO=120:GOSUB320`
PLOT	Plots a point at the current location. `COMMAND=PLOT:GOSUB 320`
TURN	Turns the spider a specified number of degrees clockwise from the current direction. `COMMAND=TURN:ANGLE=125:GOSUB 320`
TURNTO	Turns the spider toward the specified coordinates. `COMMAND=TURNTO:XTO=127:YTO=11:GOSUB 320`
NORTH	Turns the spider straight up, or 270 degrees. `COMMAND=NORTH:GOSUB 320`
FACE	Turns the spider to face a certain direction in degrees clockwise from 3 o'clock (east). `COMMAND=FACE:ANGLE=135:GOSUB 320`
FEEL	Finds the color (Sanyo BASIC color number) of the point at the current location, leaves in variable TCOLOR. `COMMAND=FEEL:GOSUB 320`
LOOK	Searches a line from the current location, in the current direction, for the first non-black pixel. If one is found, leaves the color in TCOLOR and coordinates in XTO and YTO. If none, leaves the coordinates of the intersection with the boundary in XTO and YTO, and TCOLOR equals zero. `COMMAND=LOOK:GOSUB 320`
ASPECT	Toggles the aspect ratio adjustment. YES equals on, NO equals off. `COMMAND=ASPECT:TOGGLE=ON:GOSUB 320`

Table II. Spider Graphics User Variable Reference Sheet

Variable Name	Description
TPEN	Current spider pen color; set in your spider graphics program. Values available are BLACK, BLUE, GREEN, CYAN, RED, MAGENTA, YELLOW, WHITE and UP (no color). Example: `TPEN=MAGENTA`
TX,TY	Current spider location. Can be set in your program; automatically set by any spider graphics command which moves the spider.
XTO,YTO	Specifies destination coordinates for several spider graphics commands. Can be set in your program; automatically set by DRAW and LOOK.
ANGLE	Degrees clockwise from 3 o'clock (east) to TURN or FACE the spider.
LLEN	Length of line to draw; set by spider programmer.
TOGGLE	Tells ASPECT whether to turn itself on (YES) or off (NO). Set by spider programmer. May be used for any other YES/NO commands you may design.

ENVOY™

Communications Software

- Easy to use, menu driven, compact and high speed
- Access electronic mail, remote systems and data networks like CompuServe, The Source and Dow Jones News Retrieval
- Terminal mode with large data-capture buffer
- Error-free transfers of text and binary files
- XMODEM (Christensen) and ANSI X3.28 transfer protocols
- User-definable Autodial and Autologin menu
- Utilities menu for file copy, type, print, erase and rename
- Remote unattended file transfers and utilities
- Available for most popular computer systems: IBM PC, PCjr, PC compatibles, Sanyo MBC-55X, MSDOS, CP/M-86, Concurrent CP/M, CP/M 2.2, CP/M Plus and more
- Money-back guarantee if not completely satisfied

$49.95

ARTISOFT INC

P.O. Box 41436
Tucson, AZ 85717
(602) 327-4305

NOW. SANYO POWER.

AT . . . COMPUTER CREATIONS

Let Us Customize A Sanyo Computer System to Fit Your Needs!

SANYO

HARDWARE

550-2 w/software	Call For Updated Prices
555-2 w/software	
775 Portable Color	
360K DS/DD Drive w/software	
360K DS/DD Drive	
RS 232C	
128K Memory	
Video Expansion Board	

EPSON PRINTERS

LX-80 (80 column)	Call For Updated Prices
LX-80 Tractor Feed	
Epson FX-80+ (80 column)	
Epson RX 100+ (135 col.)	

STAR MICRONICS PRINTERS

SG-10 (80 column)	Call For Prices
SG-15 (136 column)	
SD-10 (80 column)	
SD-15 (136 column)	
SR-10 (80 column)	
SR-15 (136 column)	
SB-10	
Powertype Daisywheel	
Powertype Tractor Feed	

PANASONIC PRINTERS

KX - 1090	Call For Prices
KX - 1091	
KX - 1092	
LQ - 3151	

Parallel Printer Cable	19

PRINTER RIBBONS

Gemini Printers (Black/Blue/Red/ Purple/Brn./Green)	5
Epson Printers	8
Panasonic Printers, Black	10
Panasonic Printers, Color	13

MONITORS

Sanyo 9" Green	Call For Prices
Sanyo 12" Green	
Sanyo 12" Amber	
Sanyo CRT 30 Green	
Sanyo CRT 36 Green	
Sanyo CRT 70 Color	
Sanyo CRT 50 Color	

MODEMS

Volksmodem (300 BAUD)	69.95
Signalman Mark X (300 BAUD)	129.95
Signalman Mark XII (300/1200 BAUD)	259.95

SOFTWARE

INFOCOM

Zork I	28
Zork II	32
Zork III	32
Deadline	35
Starcross	35
Suspended	35
Witness	28
Planetfall	28
Enchanter	28
Infidel	32
Sorcerer	32
Invisiclues	7

MICHTRON

Mi-Term	68
Picasso	88
Freeze Frame	33

OTHERS

D-Base II	375
OES Accounts Receivable	79
OES Accounts Payable	79

U.S. DIGITAL

Copylink	Call
Merchandiser	Call
CpeMulator	Call

SANYO AUTHORIZED SERVICE CENTER
Call for prices and services!

GENERIC DISKS AT FANTASTIC PRICES!

DS/DD GENERIC DISKS AS LOW AS

$1.20 ea.

Generic 100% Defect-Free/Guaranteed.

Includes sleeves, labels, write protect tabs, reinforced hub rings, lifetime warranty. (2 boxes minimum).

		DS/DD	
Diskettes	2 bxs.	**$13.99**	Per
(2 bx. Min.)	3-6 bxs.	**$12.99**	Box
10 per box	7-10 bxs.	**$11.99**	

MORE THAN 10 BOXES - Call

★ ★ DEALER INQUIRIES INVITED ★ ★

ACCESSORIES/BOOKS

ACCESSORIES

Flip n' File 10	4
Flip n' File 15	7
Original Flip n' File 50	14
Flip n' File Cart Case	12
Library Cases (10 colors)	4
Disk Bank/5 (Holds 50)	12
Disk Bank (Holds 10)	5
Power Strip (6 outlet)	16
Lineguard Spike Suppressor	13
Disk Drive Cleaning Kit	13
MicroMate Paper (20#, 540 sheets	10
Computer Paper (15#, 3200 sheets)	30
Printer Stand (wire)	16
Sanyo System Cover	20
Printer Covers	Call

MANUALS/BOOKS

GW Basic Reference	39
MS DOS 2.1	44
WordStar Reference	39
ReportStar Reference	39
DataStar Reference	29
MailMerge Reference	29
SpellStar Reference	29
Sanyo MBC User's Handbook	17

To order call TOLL FREE

1-800-824-7506

ORDER LINE ONLY

No extra charge for MasterCard or Visa

COMPUTER CREATIONS, Inc.

P.O. BOX 292467 - DAYTON, OHIO 45429

For information call: (513) 294-2002 (Or to order in Ohio)

Order Lines Open 8:30 a.m. to 8:00 p.m. Mon.-Fri.; 10 a.m. to 4:00 p.m. Sat. (Eastern Standard Time). Minimum $10 per order. C.O.D. (add $3.00). Call toll free number to verify prices and availability of product. Hardware requires additional freight charges. Software and accessories add $3.00 shipping and handling in Continental United States. Actual freight will be charged outside U.S. to include Canada, Alaska, Hawaii, Puerto Rico. Ohio residents add 6% sales tax. Free shipping on prepaid cash orders within the Continental U.S. For immediate delivery send cashier's check, money order or direct bank transfers. Personal and company checks allow 3 weeks to clear. School purchase orders welcome. Due to our low prices, all sales are final. NO CREDITS. All defective returns must have a return authorization number. Please call (513) 294-2002 to obtain an RA# or your return will not be accepted for replacement or repair.

Listing 1: SPIDER.BAS

```
10 REM *** SANYO BASIC SPIDER GRAPHICS SUBROUTINE PACKAGE *******
20 REM *** by Dave Neuendorf, Neu Systems, March 1985 ***********
30 REM ************************************************************
40 TODEGR=180/3.14159:REM *** Radians to degrees conversion factor ************
50 TX=0:TY=0:TDIR=0:TPEN=8:REM *** TPEN = pen color. Spider coordinates are ***
60 REM      in Sanyo BASIC world or screen coordinate systems. *****************
70 DRAWTO  =1:REM *** Go to XTO,YTO ***************************************
80 DRAW    =2:REM     Draw line of length LLEN in current direction.
90 TURNTO  =3:REM     Turn toward XTO,YTO.
100 TURN   =4:REM     Turn ANGLE degrees clockwise.
110 NORTH  =5:REM     Turn straight up.
120 FACE   =6:REM     Turn to ANGLE degrees clockwise from east.
130 PLOT   =7:REM     Plot a point at current location in current color.
140 LOOK   =8:REM     Find coord. of 1st non-black pixel in current dir.
150 FEEL   =9:REM     Find color of pixel at current location.
160 ASPECT=10:REM *** Turn aspect ratio adjustment on & off. ******************
170 YES=1:NO=0:YLIM=199:REM *** Used by aspect ratio command. *****************
180 REM
190 BLACK  =0:REM *** Color specification variables. **************************
200 BLUE   =1
210 GREEN  =2
220 CYAN   =3
230 RED    =4
240 MAGENTA=5
250 YELLOW =6
260 WHITE  =7
270 UP     =8:REM *** TPEN >7 = pen up. ***************************************
280 REM
290 GOTO 2000
300 REM *** Spider command definitions. ***************************************
310 REM
320 ON COMMAND GOTO 360,400,460,520,560,580,600,620,1550,1600
330 REM
340 REM ************************************************************************
350 REM
360 IF TPEN>7 THEN 380:REM *** DRAWTO command *********************************
370 LINE(TX,TY)-(XTO,YTO),TPEN
380 TX=XTO:TY=YTO:RETURN
390 REM
400 A=TDIR/TODEGR:REM *** DRAW command ***************************************
410 XTO=TX+LLEN*COS(A):YTO=TY+LLEN*SIN(A)
```


MEMORY MADNESS

128K Upgrade $55.00
Sanyo Video Board $180.00
360K Disk Drive $137.00
SANYO BASIC TOOLBOX
Sanyo, IBM unprotect, keys, IBM to Sanyo converter, and additional commands manual $54.00
Toolbox for Turbo Pascal Graphics (Sanyo) symbol, line, box, fill, circle, and much more $54.00
MAKE PASCAL PROGRAM LIKE BASIC
THE SOFTIES P.O. BOX 26484, Minneapolis, MN 55426
(612) 593-9857 DEALER INQUIRIES WELCOME

RUN LOTUS 1-2-3™ ON SANYO 550/555 FOR ONLY $40.

SOFTWARE ANSWER #2B is a program that allows LOTUS 1-2-3 version 1A to run with all features on a SANYO 550/555 with 256K memory.

- HIGH RESOLUTION GRAPHICS
- SOUND WORKS (to indicate errors)
- EASY SWITCH TO AND FROM OTHER PCs
- ONLY USES 5K MEMORY
- RUNS 1-2-3 FROM HARD DISK
- NO VIDEO BOARD REQUIRED

SOFTWARE ANSWERS, INC. 2888 BLUFF ST. #460 BOULDER, CO 80301 (303) 441-9290

™ Lotus Development Corp.

```
42Ø IF TPEN>7 THEN 44Ø
43Ø LINE(TX,TY)-(XTO,YTO),TPEN
44Ø TX=XTO:TY=YTO:RETURN
45Ø REM
46Ø IF XTO<>TX THEN 48Ø:REM *** TURNTO command **********************************
47Ø TDIR=ATN((YTO-TY)/.Ø1):GOTO 49Ø
48Ø TDIR=ATN((YTO-TY)/(XTO-TX))
49Ø TDIR=TDIR*TODEGR:RETURN
5ØØ RETURN
51Ø REM
52Ø TDIR=TDIR+ANGLE:REM *** TURN command ************************************
53Ø IF TDIR>36Ø THEN TDIR=TDIR-36Ø
54Ø RETURN
55Ø REM
56Ø TDIR=-9Ø:RETURN:REM *** NORTH command ***********************************
57Ø REM
58Ø TDIR=ANGLE:RETURN:REM *** FACE command ************************************
59Ø REM
6ØØ PSET(TX,TY),TPEN:RETURN:REM *** PLOT command ******************************
61Ø REM
62Ø REM
63Ø IF TDIR=9Ø THEN XTO=TX:YTO=YLIM:GOTO 84Ø:REM *** LOOK command *************
64Ø IF TDIR=27Ø THEN XTO=TX:YTO=Ø:GOTO 84Ø:REM *** Find where the present    **
65Ø REM          *** course intersects with the edge of the screen. ***********
66Ø A1=TDIR/TODEGR:IF A1=Ø THEN A1=.Ø1:REM *** Don't allow division by zero. **
67Ø X1=TX-TY/(TAN(A1)):X2=TX+(YLIM-TY)/(TAN(A1)): REM *** Edge coord. equations
68Ø Y1=TY-(TAN(A1))*TX:Y2=TY+(TAN(A1))*(639-TX): REM *** for var. quadrants. **
69Ø IF TDIR>=Ø AND TDIR<=9Ø THEN 75Ø: REM *** 1st quadrant.
7ØØ IF TDIR>=9Ø AND TDIR<=18Ø THEN 78Ø: REM *** 2nd quadrant.
71Ø IF TDIR>=18Ø AND TDIR<=27Ø THEN 81Ø: REM *** 3rd quadrant.
72Ø XTO=X1:YTO=Y2: REM *** 4th quadrant.
73Ø IF XTO>639 THEN XTO=639:GOTO 84Ø
74Ø IF YTO<Ø THEN YTO=Ø:GOTO 84Ø
75Ø XTO=X2:YTO=Y2
76Ø IF XTO>639 THEN XTO=639:GOTO 84Ø
77Ø IF YTO>YLIM THEN YTO=YLIM:GOTO 84Ø
78Ø XTO=X2:YTO=Y1
79Ø IF XTO<Ø THEN XTO=Ø:GOTO 84Ø
8ØØ IF YTO>YLIM THEN YTO=YLIM:GOTO 84Ø
81Ø XTO=X1:YTO=Y1
82Ø IF XTO<Ø THEN XTO=Ø:GOTO 84Ø
83Ø IF YTO<Ø THEN YTO=Ø
84Ø REM *** Found intersection of course & edge, now look for pixels. *********
85Ø IF YLIM>199 THEN YTO=POINT(YTO,1):REM *** Convert to screen coord's. ******
86Ø IF YLIM>199 THEN TY=POINT(TY,1)
87Ø DXSAVE=XTO:DYSAVE=YTO:LSAVE=LLEN
88Ø XSAVE=TX:YSAVE=TY:COMMAND=DRAW:PSAVE=TPEN:TPEN=8:LLEN=3:GOSUB 32Ø
89Ø XTO=DXSAVE:YTO=DYSAVE:LLEN=LSAVE
9ØØ IF TX>=639 OR TX<=Ø OR TY>=199 OR TY<=Ø THEN TCOLOR=Ø:GOTO 151Ø
91Ø IF ABS(XTO-TX)<.Ø1 THEN 98Ø
92Ø IF ABS(YTO-TY)>.Ø1 THEN 1Ø3Ø
93Ø FX=XTO-TX:FOR DX=SGN(FX) TO FX STEP SGN(FX):REM *** Look horizontally. ****
94Ø TCOLOR=COLOR(TX+DX,TY)
95Ø IF TCOLOR>Ø THEN XTO=TX+DX:DX=SGN(FX)*(1+ABS(FX))
96Ø NEXT DX
97Ø GOTO 151Ø
98Ø FY=YTO-TY:FOR DY=SGN(FY) TO FY STEP SGN(FY):REM *** Look vertically. ******
99Ø TCOLOR=COLOR(TX,TY+DY)
1ØØØ IF TCOLOR>Ø THEN YTO=TY+DY:DY=FY
```

```
101Ø NEXT DY
102Ø GOTO 151Ø
103Ø FX=XTO-TX:FY=YTO-TY:REM *** Look any other direction. **********
104Ø IF ABS(FX-FY)>.Ø1 THEN 11ØØ
105Ø FOR DX=SGN(FX) TO FX STEP SGN(FX):REM *** Look along diagonal lines. *****
106Ø TCOLOR=COLOR(TX+DX,TY+SGN(FY)*ABS(DX))
107Ø IF TCOLOR>Ø THEN XTO=TX+DX:YTO=TY+SGN(FY)*ABS(DX):DX=SGN(FX)*(1+ABS(FX))
108Ø NEXT DX
109Ø GOTO 151Ø
11ØØ IF (TDIR>45 AND TDIR<135) OR (TDIR>225 AND TDIR<315) THEN 13ØØ
111Ø FXSGN=SGN(FX):FYSGN=SGN(FY):FXABS=ABS(FX):FYABS=ABS(FY)
112Ø PRATIO=ABS(FX/FY):XADD=FXSGN*PRATIO:IX=Ø: REM *** X changing faster than Y
113Ø FOR DY=FYSGN TO FY STEP FYSGN
114Ø FOR DX=FXSGN TO FXSGN*INT(ABS(XADD)) STEP FXSGN
115Ø IX=IX+FXSGN
116Ø IF ABS(IX)>FXABS THEN 119Ø
117Ø TCOLOR=COLOR(TX+IX,TY+DY)
118Ø IF ABS(IX+FXSGN) <=FXABS THEN 12ØØ
119Ø DX=FXSGN*INT(ABS(XADD)):GOTO 121Ø
12ØØ FLAG=Ø:IF TCOLOR=Ø THEN FLAG=1:TCOLOR=COLOR(TX+IX+FXSGN,TY+DY)
121Ø IF TCOLOR=Ø THEN 124Ø
122Ø XTO=TX+IX:YTO=TY+DY:DX=FXSGN*INT(ABS(XADD)):DY=FY
123Ø IF FLAG=1 THEN XTO=XTO+FXSGN
124Ø NEXT DX
125Ø IF ABS(DY+FYSGN) <= FYABS THEN 127Ø
126Ø DY=FY
127Ø XADD=XADD-FXSGN*INT(ABS(XADD))+FXSGN*PRATIO
128Ø NEXT DY
129Ø GOTO 151Ø
13ØØ FXSGN=SGN(FX):FYSGN=SGN(FY):FXABS=ABS(FX):FYABS=ABS(FY)
131Ø PRATIO=ABS(FY/FX):YADD=FYSGN*PRATIO:IY=Ø: REM *** Y changing faster than X
132Ø FOR DX=FXSGN TO FX STEP FXSGN
133Ø FOR DY=FYSGN TO FYSGN*INT(ABS(YADD)) STEP FYSGN
134Ø IY=IY+FYSGN
135Ø IF ABS(IY)>FYABS THEN 138Ø
136Ø TCOLOR=COLOR(TX+DX,TY+IY)
137Ø IF ABS(IY+FYSGN)<=FYABS THEN 139Ø
138Ø DY=FYSGN*INT(ABS(YADD)):GOTO 142Ø
139Ø FLAG=Ø:IF TCOLOR=Ø THEN FLAG=1:TCOLOR=COLOR(TX+DX,TY+IY+FYSGN)
14ØØ IF ABS(DX+FXSGN)>FXABS THEN 142Ø
141Ø IF TCOLOR=Ø THEN FLAG=2:TCOLOR=COLOR(TX+DX,TY+IY-FYSGN)
142Ø IF TCOLOR=Ø THEN 146Ø
143Ø XTO=TX+DX:YTO=TY+IY:DX=FX:DY=FYSGN*INT(ABS(YADD))
144Ø IF FLAG=1 THEN YTO=YTO+FYSGN
145Ø IF FLAG=2 THEN YTO=YTO-FYSGN
146Ø NEXT DY
147Ø IF ABS(DX+FXSGN) <= FXABS THEN 149Ø
148Ø DX=FX
149Ø YADD=YADD-FYSGN*INT(ABS(YADD))+FYSGN*PRATIO
15ØØ NEXT DX
151Ø IF YLIM>199 THEN YTO=POINT(YTO,3):REM *** Convert to world coord's. ******
152Ø TX=XSAVE:TY=YSAVE:TPEN=PSAVE
153Ø IF YLIM>199 THEN TY=POINT(TY,3)
154Ø RETURN
155Ø REM *** FEEL command. ************************************************
156Ø IF YLIM>199 THEN TY=POINT(TY,1):REM *** Convert to screen coord's. *******
157Ø TCOLOR=COLOR(TX,TY)
158Ø IF YLIM>199 THEN TY=POINT(TY,3):REM *** Back to world coord's. ***********
159Ø RETURN
```

ACCOUNTING FOR MICROS

$395 Set of Four
$325 Set of Three
$465 Set of Five

ACCOUNTING FOR MICROS is a set of integrated accounting programs which meet professional standards. They're fast and easy to use, with complete instructions. Our manual (shown above) also includes helpful information on bookkeeping and computers.

GENERAL LEDGER $125
Allows up to 1,000 accounts & 1,000 transactions/month. Retains mo/end balances for Last year, This Year and Forecast. Includes Cash Disbursements, Cash Receipts and General Journals. Reports include Balance Sheet, Income Statement, Annual Summaries and Journal Reports.

ACCOUNTS RECEIVABLE $125
Allows up to 2,500 customers and 1,000 invoices per month. Invoicing can access Inventory Module. Keeps customer names and addresses. Invoice prints on plain paper or any pre-printed form. Statements can be printed at any time.

INVENTORY $125
Allows up to 4,000 parts. Keeps 3 month history of unit sales as well as year to date. With AR, can be used as point of sale system (prints invoices, handles cash). Reports include Inventory Value and Stock Report, Internal and Customer Price List.

ACCOUNTS PAYABLE $125
Allows up to 500 vendors and 600 invoices/mo. Records invoices and handwritten checks. Prints computer checks on any pre-printed form. Keeps vendor names and addresses.

PAYROLL $125
Will handle up to 100 employees with eight deductions per employee. Deductions may be determined as fixed dollar amounts or percentages, or referred to a table for automatic look-up. Tax tables are easily entered, or purchased separately. Prints checks and W2's.

SET OF FIVE $465
SET OF FOUR $395
SET OF THREE $325

RUN ON MOST CPM AND MSDOS

Apple CPM	*IBM PC,XT,PC jr,AT*	*Sanyo (all)*
Columbia	*Kaypro (all)*	*Tandy (all)*
Compaq	*Morrow (all)*	*TeleVideo*
Corona	*Osborne (all)*	*Zenith 100 & 150*
Eagle (all)	*Panasonic*	*8 " CPM*
Epson QX-10	*Radio Shack CPM*	*Other compatibles*

DEMO DISK $18.00

Try all 5 programs above (GL, AR, AP, IN, PR). Order our DEMO DISK for $18.00 (includes shipping). Condensed versions of the programs give you the "feel" of data entry and access. Includes sample reports and instructions. Specify machine.

TMAN $125
The "Catch-All" program. Files any type of information for quick access. Name or subject oriented with 15 lines of notes per name. Use TMAN as a mailing list, filing system, notebook, etc. Can be used alone or with data from our other programs.
Try ***TMAN DEMO $16***

HOW TO ORDER: Please specify machine and disk format. You can pay by check, by VISA or MasterCard (we need your expiration date and card number), or by UPS COD (add $2.50 COD charge). Our price includes shipping. Minnesota residents, add 6% sales tax). We ship most orders the same day.
or ***ORDER BY PHONE: 612-339-2521***

James River Group
INCORPORATED

(612) 339-2521

125 North First Street
Minneapolis, MN 55401

```
16ØØ IF TOGGLE=YES THEN YLIM=45Ø ELSE YLIM=199:REM *** Set aspect ratio. ******
161Ø WINDOW(Ø,Ø)-(639,YLIM+1):RETURN
2ØØØ REM *** Spider graphics programs using the subroutines start here. *******
```

Listing 2: WEBS.BAS

```
2ØØØ REM *** Spider graphics programs using the subroutines start here. *******
2Ø1Ø REM >>>>>>>>>> WEBS DEMONSTRATION by Patti Neuendorf <<<<<<<<<<
2Ø2Ø REM >>> Turn on the aspect ratio to make square.
2Ø3Ø COMMAND=ASPECT:TOGGLE=YES:GOSUB 32Ø
2Ø4Ø REM >>> Draw webs with from 4 to 8 sides.
2Ø5Ø FOR STRANDS=4 TO 8:CLS:TPEN=RED
2Ø6Ø REM >>> The angle between the base strands will vary with the number
2Ø7Ø REM     of sides.
2Ø8Ø LLEN=2ØØ:FOR ANGLE=Ø TO 359 STEP 36Ø/STRANDS:TX=3ØØ:TY=2ØØ
2Ø9Ø REM >>> Turn the spider and draw each of the base strands radiating
21ØØ REM     out from the center.
211Ø COMMAND=FACE:GOSUB 32Ø:COMMAND=DRAW:GOSUB 32Ø:NEXT ANGLE
212Ø REM >>> Position the spider along one of the base strands facing the
213Ø REM     proper direction.
214Ø COMMAND=FACE:ANGLE=9Ø-18Ø/STRANDS:GOSUB 32Ø:TX=3ØØ:TY=2ØØ
215Ø REM >>> The angle between sides will vary with the number of sides.
216Ø ANGLE=36Ø/STRANDS
217Ø REM >>> Draw seven concentric cross strands.
218Ø FOR SSTEP=1 TO 7
219Ø REM >>> Each cross strand will start 2Ø pixels farther out and be a new
22ØØ REM     color.
221Ø TX=TX+2Ø:FOR WEB= 1 TO STRANDS:TPEN=SSTEP
222Ø REM >>> For each side of a cross strand, turn the spider, look for
223Ø REM     the next base strand, and draw a line to it.
224Ø COMMAND=TURN:GOSUB 32Ø:COMMAND=LOOK:GOSUB 32Ø:COMMAND=DRAWTO:GOSUB 32Ø
225Ø NEXT WEB:NEXT SSTEP
226Ø REM >>> Prompt for a keystroke between each complete web.
227Ø PRINT "?"
228Ø Y$=INKEY$:IF Y$="" THEN 228Ø
229Ø NEXT STRANDS
```

Listing 3: POLYGONS.BAS

```
2ØØØ REM *** Spider graphics programs using the subroutines start here. *******
2Ø1Ø REM >>>>>>>>>> SPIRALING POLYGONS DEMONSTRATION by Patti Neuendorf <<<<<<<
2Ø2Ø REM >>> Turn on the aspect ratio
2Ø3Ø COMMAND=ASPECT:TOGGLE=YES:GOSUB 32Ø
2Ø4Ø REM >>> Draw polygons with angles ranging from 9Ø to Ø degrees by 5
2Ø5Ø REM     degrees (the spider will turn the complementing angle).
2Ø6Ø FOR TANGLE=9Ø TO 18Ø STEP 5
2Ø7Ø REM >>> Always start with the spider facing East.
2Ø8Ø COMMAND=FACE:ANGLE=Ø:GOSUB 32Ø
2Ø9Ø REM >>> Make the sides larger for the polygons with more sides.
21ØØ LLEN=2ØØ:IF TANGLE>12Ø THEN LLEN=3ØØ
211Ø REM >>> Clear the screen for each new polygon and reset the starting
212Ø REM     position.  Draw up to 1ØØ spiraling sides.
213Ø CLS:TX=425:TY=15Ø:FOR SIDE=1 TO 1ØØ
214Ø REM >>> Turn the spider "tangle" degrees for each side.
215Ø COMMAND=TURN:ANGLE=TANGLE:GOSUB 32Ø
216Ø REM >>> TPEN cycles from 1 to 7 {SIDE-7*INT(SIDE/7) gives the remainder
217Ø REM     of SIDE/7}.
218Ø TPEN=SIDE-7*INT(SIDE/7)+1
219Ø REM >>> Draw a side, then decrease the length until it goes negative.
22ØØ COMMAND=DRAW:LLEN=LLEN-3:IF LLEN>Ø THEN GOSUB 32Ø
```

```
221Ø NEXT SIDE
222Ø REM >>> Prompt for a keystroke between polygons.
223Ø PRINT "?"
224Ø Y$=INKEY$:IF Y$="" THEN 224Ø
225Ø NEXT TANGLE
```

Listing 4: FLOWERS.BAS

```
2ØØØ REM *** Spider graphics programs using the subroutines start here. *******
2Ø1Ø REM >>>>>>>>>> FLOWER DEMONSTRATION by Patti Neuendorf <<<<<<<<<<
2Ø2Ø REM >>> Turn on the aspect ratio.
2Ø3Ø COMMAND=ASPECT:TOGGLE=YES:GOSUB 32Ø
2Ø4Ø REM >>> Set starting location, length and color.
2Ø5Ø FTX=325:FTY=299:FLLEN=3Ø:FTPEN=BLUE
2Ø6Ø REM >>> Set up an array to adjust the nested Y-coordinates.
2Ø7Ø DIM CORRY(12):CORRY(1)=Ø:CORRY(2)=Ø:CORRY(3)=1:CORRY(4)=1.5:CORRY(5)=2
2Ø8Ø CORRY(6)=3.5:CORRY(7)=4:CORRY(8)=4.5:CORRY(9)=5:CORRY(1Ø)=5.75
2Ø9Ø CORRY(11)=6:CORRY(12)=7
21ØØ REM >>> Draw flowers with from 2 to 12 petals; clear the screen between
211Ø REM     each flower; and draw 6 nested lines in each petal.
212Ø FOR ZZZ=2 TO 12:CLS:FOR QQQ=Ø TO 6
213Ø REM >>> Shift the starting location, length, and color for each nested
214Ø REM     line in each petal.
215Ø TX=FTX-QQQ*2:TY=FTY-QQQ*CORRY(ZZZ):LLEN=FLLEN-QQQ*4:TPEN=FTPEN+QQQ
216Ø REM >>> Orient the spider for each petal.
217Ø FOR YYY=Ø TO ZZZ-1
218Ø COMMAND=FACE:ANGLE=Ø:GOSUB 32Ø
219Ø COMMAND=TURN:ANGLE=YYY*36Ø/ZZZ:GOSUB 32Ø
22ØØ REM >>> Draw 5 sides for each nested line of the petal.
221Ø FOR XXX=1 TO 5
222Ø COMMAND=TURN:ANGLE=6Ø:GOSUB 32Ø
223Ø COMMAND=DRAW:GOSUB 32Ø
224Ø NEXT XXX:NEXT YYY:NEXT QQQ
225Ø REM >>> Prompt for a keystroke between flowers.
226Ø PRINT "?"
227Ø Y$=INKEY$:IF Y$="" THEN 227Ø
228Ø NEXT ZZZ
```

Listing 5: STAR.BAS

```
2ØØØ REM *** Spider graphics programs using the subroutines start here. *******
2Ø1Ø REM >>>>>>>>>> STARS DEMONSTRATION by Patti Neuendorf <<<<<<<<<<
2Ø2Ø REM >>>>> TRANSLATION, ROTATION, SCALING, AND RANDOMNESS <<<<<
2Ø3Ø REM >>> Turn on the aspect ratio.
2Ø4Ø COMMAND=ASPECT:TOGGLE=YES:GOSUB 32Ø
2Ø5Ø REM >>> Set base values to be randomized; clear screen.
2Ø6Ø BLLEN=1ØØ:BTX=4ØØ:BTY=25Ø:BTPEN=6:BANGLE=18Ø:CLS
2Ø7Ø REM >>> Randomize location, length, color, and angle.
2Ø8Ø TX=BTX*RND+1ØØ:TY=BTY*RND+1ØØ:LLEN=BLLEN*RND
2Ø9Ø TPEN=BTPEN*RND+1:ANGLE=BANGLE*RND
21ØØ REM >>> Orient the spider.
211Ø COMMAND=FACE:GOSUB 32Ø
212Ø REM >>> Draw the star.
213Ø ANGLE=144:FOR SIDE = 1 TO 5
214Ø COMMAND=DRAW:GOSUB 32Ø:COMMAND=TURN:GOSUB 32Ø
215Ø NEXT SIDE
216Ø REM >>> Prompt for a keystroke to add another star.
217Ø Y$=INKEY$:IF Y$="" THEN 217Ø
218Ø IF Y$="x" THEN END
219Ø GOTO 2Ø8Ø
```

This could very well be the last BASIC listing that you ever have to 'hunt and peck.'

The Typing Teacher

By Leonard Hyre

At last, I have a couple of hours to play (make that "work") on the Sanyo. I'll just get the latest copy of SOFT SECTOR and type in that 12-page super does-everything-in-the-world program I read about. Now, let's see:

```
1 FOR X = 1 TO 1000
```

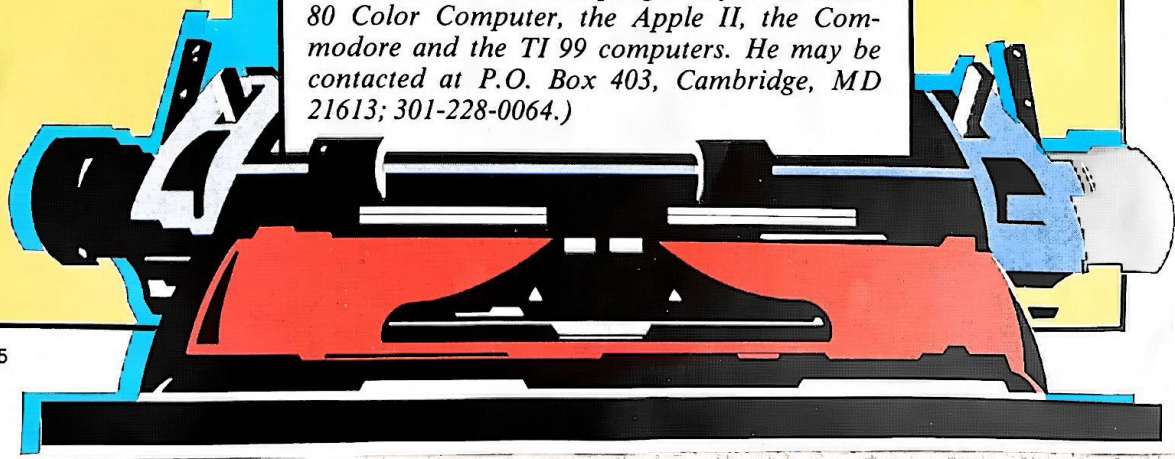
Now where is that 'X' key today? Yesterday it was somewhere down here in the bottom row. Oh well, forget it! I'll be spending the next two years here at this rate.

If this sounds familiar to you, or if there is somebody else you can think of who might benefit from increased typing skills, then *Typing Teacher* should be of interest to you. Typing is a skill which adds much to the computer hobbyist's enjoyment, since we spend so much time banging on the keys. For students, typing is a "must have" skill for top-notch work. Best of all, typing is a skill which, like swimming, is not forgotten once mastered.

I have tried to keep the screen format of *Typing Teacher* attractive while, at the same time, easy to work on. Luckily, the Sanyo 550/555 is extremely cooperative, allowing us to put high resolution graphics and 80-column text on the same screen. Using SYMBOL to format titles and such makes for first-class displays for both novice and expert programmers alike.

When *Typing Teacher* first comes up, a title screen and a graphics representation of the keyboard layout are presented. The keyboard features highlighted "home keys" and an "on" indicator for the LOCK key (a reminder of what the program expects). In a few seconds, the title disappears and is replaced by a selection menu. The keyboard display remains on the screen all the time.

(Leonard Hyre works as a claims representative for the Social Security Administration. He has written several articles for THE RAINBOW and has written commercial programs for the TRS-80 Color Computer, the Apple II, the Commodore and the TI 99 computers. He may be contacted at P.O. Box 403, Cambridge, MD 21613; 301-228-0064.)



The would-be typist may choose from four different exercises or the on-screen explanation of some of the goals and features of the program. It is suggested that you stay with selection one (Beginner) until you become comfortable with the idea of leaving your finger tips resting on the home keys (highlighted in red).

Learning to type is a satisfying experience in its own right, and no scores or levels are required to make you feel good. Also, I have not emphasized speed typing. If you don't know where the keys are, it doesn't matter whether you are fast or slow. Learn the keyboard and the speed will come along by itself. One rule which cannot be over emphasized is this: Keep you eyes on the screen display, not on the actual keyboard.

As for programming style, the *Typing Teacher* is relatively straightforward with nothing to boggle the mind of the average programmer. The beginning of the program is used to set up some housekeeping (DIM statements, etc.) and put up a title. I must admit I have a tendency to get a bit exotic with titles, so bear with me. From here, we GOSUB down to Line 1090 and draw in the keyboard.

After the menu is displayed by lines 220 to 290, the user directs flow of the program. Menu selections one and two share the same basic control routines, called by Line 300 and encompassing lines 850 through 1000. Selections three and four use totally independent routines for their respective tasks. Word practice is handled by lines 320 to 480 and "Phrases & Sentences" utilize lines 490 to 630. There is also a "Graduation" award at lines 1020 to 1070 for those completing 24 correct phrases.

If you wish to add extra exercises or change existing ones, it is a simple task. Just add the information in the proper place in the DATA statements (lines 1300 through 1370) and be careful to change the appropriate READ in Line 1300.

I hope you enjoy *Typing Teacher* as much as I have enjoyed writing and presenting it. If you don't want to type the program in, remember that you can get it on SOFT SECTOR ON DISK, or if you prefer, just send me $7 at the address in the capsule bio and I'll send you a copy on disk.

Editor's Note: The graphics characters in lines 1190 to 1290 of the listing are generated by pressing the GRAPH key in conjunction with the proper key for that symbol. The keyboard locations of the graphics characters may be found on Page 1-18 of your Sanyo Operator's Guide.

The listing: TYPING.BAS

```
1Ø '************************************
2Ø '*                                  *
3Ø '*         TYPING   TEACHER         *
4Ø '*         by Leonard  Hyre         *
5Ø '*   PO Bx 4Ø3 Cambridge MD 21613    *
6Ø '*                                  *
7Ø '*         1-3Ø1-228-ØØ64           *
8Ø '*  For users of the SANYO  55Ø/555  *
9Ø '************************************
95 ' *** SET UP HOUSEKEEPING AND TITLE SCREEN ***
1ØØ DEFINT A-Z
11Ø DIM T$(14),A$(36),B$(36),C$(18),D$(12)
12Ø FOR DT=1 TO 14:READ T$(DT):NEXT
13Ø Y=35:YY=575:ZZ=33
14Ø DATA T,Y,P,I,N,G,-,T,E,A,C,H,E,R
15Ø COLOR 6,Ø:CLS
16Ø FOR TI=1 TO 14:LOCATE 1,ZZ,Ø:PRINT T$(TI):ZZ=ZZ+1:C=INT(RND(1)*6)+1:SYMBOL(Y
,3Ø),T$(TI),3,3,C,Ø:Y=Y+4Ø:SYMBOL(YY,8Ø),T$(TI),3,3,C,2:YY=YY-4Ø:OUT &H38,5Ø:NEX
T
17Ø LOCATE 2,32:COLOR 3:PRINT"by  Leonard Hyre"
18Ø GOSUB 118Ø
19Ø GOSUB 141Ø
2ØØ FOR DL=1 TO 12ØØ:NEXT
21Ø GOSUB 138Ø
22Ø '*** MENU DISPLAY ***
23Ø LOCATE 1,36:COLOR 6:PRINT"The MENU-";
24Ø LOCATE 2,36:PRINT"^^^^^^^^^"
25Ø LOCATE 4,3Ø:PRINT"1> Beginner Exercises":LOCATE 5,3Ø:PRINT"2> Advanced Excer
cises":LOCATE 6,3Ø:PRINT"3> Word Practice":LOCATE 7,3Ø:PRINT"4> Full Phrases and
 Sentences":LOCATE 8,3Ø:PRINT"5> Instructions/Background
26Ø LOCATE 1Ø,3Ø:PRINT"Enter NUMBER of Choice?"
27Ø CH$=INKEY$:IF CH$="" THEN 27Ø
28Ø IF VAL(CH$)<1 OR VAL(CH$)>5 THEN 27Ø
29Ø GOSUB 138Ø
3ØØ ON VAL(CH$) GOTO 32Ø,32Ø,35Ø,53Ø,69Ø
```

```
31Ø '*** THIS ROUTINE CALLS SUB SHARED BY SELECTIONS 1 AND 2
32Ø FOR E=1 TO 36:GOSUB 91Ø:NEXT
33Ø GOTO 21Ø
34Ø '*** ROUTINE FOR SELECTION 3 - WORD PRACTICE ***
35Ø COLOR 6:LOCATE 1,1:PRINT"WORD PRACTICE....":LOCATE 1,6Ø:COLOR 4:PRINT"'?'at
prompt = MENU.":COLOR 7:PRINT STRING$(8Ø,239);
36Ø LOCATE 5,66:COLOR 2:PRINT"DON'T WORRY":LOCATE 6,66:PRINT"ABOUT SPEED"
37Ø LOCATE 1Ø,7:COLOR 1,7:PRINT"   Repeat These Word Exercises Until You Can Typ
e Them Smoothly.   ":COLOR 6,Ø
38Ø FOR E=1 TO 18
39Ø COLOR 6:LOCATE 4,1:PRINT"Here is your word....";C$(E)
4ØØ LOCATE 5,12:PRINT"TYPE....";
41Ø INPUT AN$
42Ø IF AN$=CHR$(&H3F) THEN GOTO 21Ø
43Ø IF AN$<>C$(E) THEN LOCATE 6,37:COLOR 4:PRINT"ERROR!":BEEP:FOR DL=1 TO 2ØØ:NE
XT:LOCATE 6,37:PRINT SPACE$(6):COLOR 6
44Ø LOCATE 4,13:PRINT SPACE$(2Ø):LOCATE 5,12:PRINT SPACE$(2Ø)
45Ø GOSUB 15ØØ
46Ø NEXT E
47Ø LOCATE 7,1:COLOR 7:PRINT"Choose: <R>edo words      <M>enu"
48Ø AX$=INKEY$:IF AX$=""THEN 48Ø
49Ø LOCATE 7,1:PRINT SPACE$(6Ø):BEEP
5ØØ IF AX$="r" OR AX$="R" THEN 35Ø
51Ø IF AX$<>"r"OR AX$<>"R"THEN 21Ø
52Ø '*** ROUTINE FOR SELECTION 4 - PHRASES AND SENTENCES ***
53Ø LOCATE 1,1:COLOR 3:PRINT"PHRASE and SENTENCE ACCURACY....":COLOR 4:LOCATE 1,
6Ø:PRINT"'?'at prompt = MENU":TC=Ø
54Ø PRINT STRING$(8Ø,239)
55Ø LOCATE 1Ø,3Ø:COLOR 2:PRINT"24 CORRECT REQUIRED";:COLOR 3:LOCATE 11,34:PRINT"
Correct=";:COLOR 6:PRINT TC;
56Ø FOR E=1 TO 12
57Ø LOCATE 4,1:COLOR 6:PRINT"YOUR PHRASE IS.....";:COLOR 7:PRINT D$(E)
58Ø LOCATE 5,66:COLOR 2:PRINT"DON'T WORRY"
59Ø LOCATE 6,66:PRINT"ABOUT SPEED":COLOR 6
6ØØ LOCATE 5,1Ø:COLOR 6:PRINT"TYPE....";:INPUT AN$
61Ø IF AN$=CHR$(&H3F) THEN 21Ø
62Ø IF AN$=D$(E) THEN TC=TC+1:GOSUB 15ØØ:IF TC=24 THEN 1Ø9Ø ELSE 64Ø
63Ø LOCATE 6,37:COLOR 4:PRINT"ERROR!":BEEP:FOR DL=1 TO 28Ø:NEXT:LOCATE 6,37:PRIN
T SPACE$(6):COLOR 6
64Ø LOCATE 4,1:PRINT SPACE$(6Ø):LOCATE 5,1:PRINT SPACE$(6Ø)
65Ø LOCATE 11,42:PRINT TC
66Ø NEXT E
67Ø IF TC<24 THEN 56Ø
68Ø '*** ROUTINE FOR SELECTION 5 - INSTRUCTIONS AND BACKGROUND ***
69Ø LOCATE 1,1:COLOR 3:PRINT"INSTRUCTIONS and BACKGROUND....."
7ØØ LOCATE 2,1:COLOR 4:PRINT STRING$(8Ø,239)
71Ø LOCATE 3,4:COLOR 6:PRINT"This program is designed to give you a number of ba
sic exercises to get you  started on the way to becoming a capable typist.";
72Ø PRINT" The emphasis is on accuracy,   rather than speed. The speed should co
me naturally with time."
73Ø COLOR 7:LOCATE 6,28:PRINT"**********************************":LOCATE 7,28:PR
INT"*    FOLLOW THESE GUIDELINES:    *"
74Ø LOCATE 8,28:PRINT"*  1> Keep fingers on HOME keys  *"
75Ø LOCATE 9,28:PRINT"*  2> Start at BEGINNER  series  *"
76Ø LOCATE 1Ø,28:PRINT"*  3> Keep eyes on the 'SCREEN'  *"
77Ø LOCATE 11,28:PRINT"**********************************"
78Ø LOCATE 12,1:COLOR 2:PRINT"PRESS ANY KEY TO CONTINUE..."
79Ø AK$=INKEY$:IF AK$=""THEN 79Ø
8ØØ FOR SWIPE=3 TO 12:LOCATE SWIPE,1:PRINT STRING$(8Ø," ");:OUT &H38,1ØØ:NEXT
```

```
81Ø COLOR 6:LOCATE 3,1:PRINT"There are several features that should be noted by
the new user."
82Ø COLOR 2:PRINT"     1> On Screen Keyboard Layout For Reference."
83Ø PRINT"        A. Home Keys Are Highlighted In ";:COLOR 4:PRINT"RED.":COLOR 2
84Ø PRINT"        B. Caps Lock Key Is Shown 'ON' As Reminder."
85Ø PRINT"     2> At Any Prompt You May Type '?' To Return To Main Menu."
86Ø PRINT"     3> There Is No Formal Lesson Plan. Work at your own pace."
87Ø COLOR 2:LOCATE 11,1:PRINT"PRESS ANY KEY TO CONTINUE...."
88Ø AK$=INKEY$:IF AK$=""THEN 88Ø
89Ø GOTO 21Ø
9ØØ '*** BODY OF ROUTINE FOR SELECTIONS 1 AND 2 ***
91Ø TI=Ø:COLOR 3:LOCATE 1,1:IF VAL(CH$)=1 THEN PRINT"BEGINNERS EXERCISES...."ELS
E PRINT"ADVANCED EXERCISES...."
92Ø LOCATE 1,6Ø:COLOR 4:PRINT"'?' at prompt = MENU.":COLOR 7:PRINT STRING$(8Ø,23
9);
93Ø LOCATE 4,1:COLOR 6:PRINT"HERE IS YOUR EXERCISE...."
94Ø LOCATE 1Ø,23:COLOR 2:PRINT"Type Each Exercise Correctly 4 Times."
95Ø IF VAL(CH$)=1 THEN LOCATE 4,26:PRINT CHR$(&HDD)+A$(E)+CHR$(&HDE)
96Ø IF VAL(CH$)=2 THEN LOCATE 4,26:PRINT CHR$(&HDD)+B$(E)+CHR$(&HDE)
97Ø LOCATE 4,62:PRINT"TIME$ PERFECT: ";TI
98Ø LOCATE 5,17:PRINT"TYPE....";:INPUT AN$
99Ø IF AN$=CHR$(&H3F) THEN GOTO 21Ø
1ØØØ IF VAL(CH$)=1 AND AN$=A$(E) THEN TI=TI+1 ELSE IF VAL(CH$)=2 AND AN$=B$(E) T
HEN TI=TI+1
1Ø1Ø IF AN$=A$(E) OR AN$=B$(E) THEN LOCATE 4,77:PRINT TI;:OUT &H38,1ØØ
1Ø2Ø IF VAL(CH$)=1 AND AN$<>A$(E) THEN LOCATE 6,37:COLOR 4:PRINT"ERROR!":BEEP:FO
R DL=1 TO 2ØØ:NEXT:LOCATE 6,37:PRINT SPACE$(6):COLOR 2
1Ø3Ø IF VAL(CH$)=2 AND AN$<>B$(E) THEN LOCATE 6,37:COLOR 4:PRINT"ERROR!":BEEP:FO
R DL=1 TO 2ØØ:NEXT:LOCATE 6,37:PRINT SPACE$(6):COLOR 6
1Ø4Ø LOCATE 5,17:PRINT SPACE$(2Ø);
1Ø5Ø IF TI< 4 THEN 98Ø
1Ø6Ø IF TI=4 THEN GOSUB 15ØØ
1Ø7Ø RETURN
1Ø8Ø '*** GRADUATION AWARD ***
1Ø9Ø GOSUB 15ØØ:GOSUB 138Ø
11ØØ CIRCLE(33Ø,45),6Ø,,,,6:PAINT(33Ø,45),6,6
111Ø LINE(34Ø,65)-(36Ø,95),1:LINE-(3ØØ,95),1:LINE-(32Ø,65),1:LINE-(34Ø,65),1
112Ø PAINT(35Ø,88),1,1
113Ø LINE(29Ø,3Ø)-(365,65),4,B
114Ø LOCATE 5,39:COLOR 4,6:PRINT"TYPING":LOCATE 6,39:PRINT"SCHOOL":COLOR Ø,6:LOC
ATE 7,38:PRINT"GRADUATE"
115Ø SYMBOL(15Ø,8),"CONGRATULATIONS GRADUATE",2,2,5,Ø
116Ø GOTO 116Ø
117Ø '*** DRAW THE ON SCREEN KEYBOARD DISPLAY ***
```


RENT THE PUBLIC DOMAIN!

Public Domain Software isn't copyrighted! Business-Educational-Games-Graphics-Finance Utilities, and more.....Hundreds of useful programs you can rent and copy yourself.

47 VOLUME LIBRARY FOR THE SANYO 550/555
SAMPLE DISK (15 programs).....$ 5.00
VOL 1-47 (47 Disk sides).....$ 50.00
550/555-VIDEO BOARD, 775 or IBM OWNERS
200 VOLUME IBM PC/MS-DOS.....$ 200.00
VOL 1-50 (50 Disk sides).....$ 50.00
Rental is for 7 days, add $7.50 for shipping plus Refundable Security Deposit of $2.00 per volume.

Send $5 for sample disk or S.A.S.E for more information
FUTURESYSTEMS, BOX 3040, VISTA, CA 92083

YOUR SOUTHERN CALIFORNIA SANYO DEALER

HAMMER INDUSTRIES, INC.
5482 OCEANUS DRIVE, SUITE B
P.O. BOX 2419
HUNTINGTON BEACH, CA 92647
(213) 598-8869 (714) 898-7324

SANYO HARDWARE AND SOFTWARE SPECIALISTS
WE SUPPORT ALL WE SELL

```
118Ø LOCATE 14,1
119Ø PRINT"    ╒═╕ ╒═╕ ╒═══════════════════════════╕
 ═╛"
12ØØ PRINT"    ‖pf1‖ ‖es‖ ‖ 1‖ 2‖ 3‖ 4‖ 5‖ 6‖ 7‖ 8‖ 9‖ Ø‖ -‖ =‖ \‖ «‖in‖ =‖ /‖ *‖
 bk‖
121Ø PRINT"    ‖═╡ ‖═══╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╡
 ═╛
122Ø PRINT"    ‖pf2‖ ‖tab-key‖ Q‖ W‖ E‖ R‖ T‖ Y‖ U‖ I‖ O‖ P‖ [‖ ]‖   ‖ ‖ 7‖ 8‖ 9‖
 -‖
123Ø PRINT"    ‖═╡ ‖═══╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╡   ‖ ‖═══╡
 ═╛
124Ø PRINT"    ‖pf3‖ ‖control‖ A‖ S‖ D‖ F‖ G‖ H‖ J‖ K‖ L‖ ;‖ '‖ `‖ «═╛ ‖ 4‖ 5‖ 6‖
 ‖+
125Ø PRINT"    ‖═╡ ‖═══╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╡
 ═╛
126Ø PRINT"    ‖pf4‖ ‖shift‖ <‖ Z‖ X‖ C‖ V‖ B‖ N‖ M‖ ,‖ .‖ /‖ *‖ sf ‖nl‖ 1‖ 2‖ 3‖
 ‖‖
127Ø PRINT"    ‖═╡ ╘═══╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╧═╡
 «═╛
128Ø PRINT"    ‖pf5‖          ╒═╕ ╒═══════════╕ ╒═╕       ‖ Ø‖ØØ‖ .‖
 ‖
129Ø PRINT"    ╘═╛          ╘═╛ ╘═══════════╛ ╘═╛       ╘═══╛
 ═╛
13ØØ  LINE(Ø,1Ø2)-(62Ø,191),3,B:PAINT(2,1Ø4),3,3
131Ø OV=147:DN=144
132Ø FOR TM=1 TO 4:PAINT(OV,DN),4,3:OV=OV+25:NEXT
133Ø OV=292:DN=144
134Ø FOR TM=1 TO 4:PAINT(OV,DN),4,3:OV=OV+25:NEXT
```


FREE SANYO PRICE LIST CATALOG

Call or write for all the information you need to save money on hardware, software, and accessories for your Sanyo. Educational, Business, and Game Software that is guaranteed to run on the MBC Series.

(PLEASE SPECIFY WHICH MODEL YOU OWN)

HITCHHIKER GUIDE TO THE UNIVERSE - The newest adventure game from the INFOCOM, the people who brought you ZORK, is now in stock for Sanyo **$34.95**

PLUS THE OTHER GREAT GAMES LISTED BELOW

***INFOCOM* —NOW IN STOCK FOR SANYO** (2.1 DOS)

INFIDEL	$39.95	ZORK I	$34.95
DEADLINE	$39.95	ZORK II	$34.95
WITNESS	$39.95	ZORK III	$34.95
STARCROSS	$34.95	ENCHANTER	$39.95
SUSPENDED	$39.95	SORCERER	$39.95
PLANET FALL	$39.95	SEA STALKER	$39.95

NEW 3.0 VERSION BORLAND TURBO PASCAL **$59.95**

ALSO NEW FROM U.S. DIGITAL:

THE MERCHANDISER - An excellent Point of Sale/Inventory Control/ Mailing List Program for Retail Stores. This PC and Sanyo 555 compatible program is a fast menu-driven package that includes Counter Sales, Inventory, etc. and much more **$495.00**

PERSONAL REVENUE ENHANCER PROGRAM - Important tool for any taxpayer or budgeter, this home accounting program makes it simple to keep track of all you expenses **$49.95**

PLUS — *EDUCATIONAL & BUSINESS SOFTWARE AVAILABLE*

PARALLEL PRINTER CABLES for Sanyo ..... **$ 29.95**

TEAC 55F QUAD DENSITY 800K Disk Drive .. *was $229.50* **NOW $169.50**

TEAC 55B - DOUBLE SIDED 360K Disk Drive.... *was $169.50* **NOW $149.50**

FLIP 'n' FILE - Disk storage system, holds 50 disks ..... **NOW $ 14.95**

***NEW* GEMINI SG-10 PRINTER** ..... **ONLY $269.50**

WABASH DISK SPECIAL — DS/DD, Box of 10 plus 1 FREE disk and a $2.00 per box mail-in rebate offer **$19.95**

11 MB HARD DRIVE w/Software by Greywolf **$1249.50**

128K RAM KIT Upgrade ..... **$ 69.95**

ORDER ONLY — CALL TOLL FREE — 1-800-233-3266

VISA, MASTERCARD, or C.O.D. *Shipping & Handling 3% - $3.00 Minimum*

For information, technical service, catalog requests and in PA call Mon.-Sat. **1-717-836-4522** or write:

M.W.S. COMPUTERS

22 EAST TIOGA ST., TUNKHANNOCK, PA 18657

Rocky Mountain Micro

SANYO

P.O. Box 1693, Sandy, Utah 84091 (801) 572-6272

- Expand your SANYO MBC 550 or 555 Beyond its 256K limits up to 768K with our Memory Card. Can be used with video board (includes DOS Config Software)
- Clock Calendar Card (Automatic time and date at boot up)

  (includes software)
- RS 232 Boards
- AB Switches
- Slimline Expansion Box
- Modems
- All types of Cables

Dealer Inquiries Welcome

6 Month Warranty on Rocky Mountain Micro Products

```
135Ø CIRCLE(155,183),3,,,,4:PAINT(155,183),4,4
136Ø RETURN
137Ø '*** WIPE THE TOP HALF OF THE SCREEN CLEAN ***
138Ø FOR WIPE=1 TO 12:LOCATE WIPE,1:OUT &H38,12:PRINT SPACE$(8Ø);:NEXT
139Ø RETURN
14ØØ '*** DATA FOR EXERCISES READ IN FROM HERE ***
141Ø FOR X=1 TO 36:READ A$(X):NEXT:FOR X=1 TO 36:READ B$(X):NEXT:FOR X=1 TO 18:R
EAD C$(X):NEXT:FOR X= 1 TO 12:READ D$(X):NEXT
142Ø DATA SFAD,FADS,KJL;,J;LK,GHTU,UGHT,WEVN,VEWQ,INOP,PINO,ZXTR,BRNY,CLOS,SEKP,
TYUI,REOP,MVWH,DALK,VBNC,ZXCV,DEKI,AIAI,SUEA,QWOI,KSDJ,FDSA,JKLO,QWTR,OICN,NOQZ,
HG;A,SLKD,YTOW,QOEI,ERLM,PSTR
143Ø DATA A1S2,D3F5,T4Y5,7K86,POQW,D3LØ,J5K1,Ø932,DØ12,PCB4,CR45,USAØ,ZØ21,MO3D,
LØO9,DR13,PR3V,ZPR6,NHU8,HØDX,XYP3,Ø1CE,NL9Ø,SLØ2,PØ3C,XØ9E,MOT5,9371,CØZ3,FHØ3,
DX34,NL9Ø,HNLZ,ZN37,CDE3,LKN8
144Ø DATA DOWNTOWN,EVERYDAY,ANTICIPATE,MERIDIAN,MAXIMUM,IMITATE,ZESTFUL,UNDERSTA
ND,OVERCOME
145Ø DATA MEANINGFUL,XYLOPHONE,SCHOOLING,PHOTOGRAPH,EXONERATE,INTERFACE,COMPUTER
,GREATEST,MAGAZINE
146Ø DATA NOW IS THE TIME FOR ALL GOOD MEN,EVERY GOOD BOY WILL HAVE HIS DAY,THER
E IS NOTHING STOPPING ME NOW,ROSES ARE RED-VIOLETS ARE VIOLET,MANY A GOOD MAN HA
S GONE ASTRAY,I LOVE TO TYPE WITH MY OWN SANYO,THE SLY FOX WILL GET THE CHICKEN
147Ø DATA COMPUTERS ARE NOT ACTUALLY SMART,HE LIKES TO WRITE HIS OWN STORIES,OST
RICHES ARE VERY STRANGE BIRDS,PLUTO AND CHARON ARE FAR DISTANT,DANCING AND SINGI
NG CELEBRATIONS
148Ø RETURN
149Ø '*** MAKE EXTREMELY STRANGE NOISES AS REQUIRED ***
15ØØ FOR S=255 TO 5 STEP -5Ø:OUT &H38,S:NEXT
151Ø RETURN
```


PRICE WAR!

TEAC 55B DRIVE $117

SANYO MBC 555-2 $799

64K MEMORY $24

QUANTITY DISCOUNT AVAILABLE

PACIFIC DISTRIBUTORS

(818)286 4960

PUBLIC DOMAIN SOFTWARE

MSDOS LIBRARY of over 100 disks with basic programs converted to ASCII format for SANYO 550/55. Send self-addressed envelope for more information and hardware/software catalogue.

DS/DD DISK DRIVES	
TEAC 54B	$139.95
PANASONIC JA551-2	$129.95
128K RAM MEMORY UPGRADES 150ns	$49.95
10 MEG HARD DISK	$1249.00
PUBLIC DOMAIN DEMO DISK	$10.00

C-TEK SYSTEMS (703) 241-4952
132 N WASHINGTON ST. FALLS CHURCH, VA. 22046

768K ** THE MISSING LINK ** 768K

EXPANSION * MEMORY * CLOCK * SOFT VIDEO

UPGRADE 256K TO 768K — COMPLETLY PLUGIN — USES 256K RAMS

* MAINTAINS EXPANSION BUS WITH TWO 62 PIN EXPANSION PORTS
* BUILT-IN REAL TIME CLOCK/CALENDAR (BATTERY BACKUP)
* EXPANDED INTERRUPT STRUCTURE TO ACCOMODATE ADDITIONAL DEVICES
* SOFT VIDEO OPTION — UNIQUE COMBINATION OF SOFTWARE AND HARDWARE ALLOWS ADDED IBM COMPATIBILITY — SIMILIAR TO SANYO VIDEO BD. AT NO EXTRA COST
* COMPLETE WITH INSTALLATION SOFTWARE
* **ALL OF WHICH ARE STANDARD FEATURES OF THE "MISSING LINK"**

PLUG-IN RAM BOARDS		RETAIL	SALE
256K-768K MISSING LINK (NO MEMORY)	#550-768	$259.95	$199.95
256K-768K MISSING LINK (256K MEMORY)	#550-7688	$339.95	$269.95
256K-768K MISSING LINK (512K MEMORY)	#550-76816	$419.95	$339.95

*** SPECIFY WITH OR WITHOUT SANYO VIDEO BD. OPTION ***
****CALL FOR LATEST MEMORY CHIP PRICES****

512K PIGGY-BACK RAM KIT-REQUIRES LESS THAN 30 MINS. TO INSTALL
Fully Compatible — With VIDEO BOARD, & Existing Hardware & Software

128K TO 512K RAM KIT—	Kit #118	$99.95
DS-DOS PLUS, M-DISK, PRINT SPOOLER		$CALL
4164-150 NS CHIPS		$CALL
256K CHIPS 120-150NS		$CALL
6 FOOT PRINTER CABLE		$19.95

TAMPA-BAY DIGITAL
(813) 527-7145
5620 - 4th Street North
St. Petersburg, Fl. 33703
VISA/MASTERCARD ACCEPTED-
PRICES REFLECT 3% CASH DISCOUNT
24 HR. MODEM (813) 526-1644

Continued from page 6

proper Drive Select (DS) signal is true and when the drive is in the ready state: the drive is powered on, the disk installed, disk rotating at more than 50 percent of the rated speed, and two index pulses (that is, two disk revolutions) have been counted.

John R. Kelty
Lincoln, NE

PANASONIC PROBLEMS

Editor:

Following is information which may be of help to Howard Miller of Roanoke, Va. (April '85, Page 33), and other readers having problems with the Panasonic KX-P1091 with their Sanyo MBC-550 series computer.

When the 1091 first came out, we had several customers with problems like those described by Mr. Miller. We contacted the local distributor who put us in contact with the Panasonic technical experts. Armed with the documentation of the problem, which we supplied, the good folks at Panasonic quickly diagnosed the problem.

Apparently, the timing between the 1091 and the Sanyo caused the problem. They said this problem only occurred with Sanyos. They corrected the problem by replacing the ROM in the printer. With this information, Mr. Miller and other readers experiencing this problem should get their printer fixed by the Panasonic dealer who sold them their printer.

Jesse C. Bunch
President, A-OK Computers
Silver Spring, MD

MORE PANASONIC PROBLEMS

Editor:

In reference to the Panasonic CT-1300D color monitor/video board compatibility problem (April '85, Page 6), you mentioned in the April issue that you knew of no solution. There is one. An inexpensive external sync adapter which doubles as a cable converter between the Panasonic cable and the IBM output port on the Video RAM Board does the job nicely. I obtained mine from Micro Equipment Corp., 6180-H Atlantic Blvd., Norcrosse, GA 30071.

It works fine. I have also used this setup with a NEC monitor with no problem at all. It's a much better (and cheaper) solution than buying a new monitor!

Gil Debus
Jonesboro, GA

Editor:

In the April issue of SOFT SECTOR, there is a "Letter to the Editor" in which the gentleman indicated a problem with his Panasonic CT-1300D monitor and his Sanyo 555 with a Video RAM Board. The problem involved the RAM Board outputting a positive sync signal and the editor's response indicated no knowledge of a solution.

On Page 86 of the same issue, there is an advertisement by Level IV Products, Inc., that offers a "Sync Inverter" that allows the use of the RAM Board with "Panasonic or other negative sync RGB monitor."

This may be the solution to the gentleman's problem. If this is tried, hopefully the results will be shared with other readers. I am anticipating buying the CT-1300D.

Alvin James, Ph.D.
Shreveport, LA

Editor's Note: It just goes to show how much you can learn by reading all of the ads that appear in SOFT SECTOR.

USER SUPPORT

Editor:

I saw a letter recently complaining about the program listings in your magazine. If the writer has a Sanyo and is not a programmer, he is not beginning to tap the Sanyo's power. You are 100 percent right that the programs are more than worth the time to key them in.

Continued on page 70

AA COMPUTER EXCHANGE

"SOUTH'S LEADING SANYO DEALER"

REQUEST OUR FULL SANYO CATALOG TODAY

ORDER LINE: 1-800-447-0088
INQUIRIES & FL: 904-388-0018

HARDWARE
Sanyo 550-2 w/Software $699
Sanyo 555-2 w/Software 999
System Cover Set 12
Sanyo 775 Color Port 2336
512K Plug-in Memory Exp 139
512K Plug-in Plans 10
10 Meg Hard Disk 1199
360K Teac Drive (55B) 129
800K Teac Drive (55F) 139
64K Mem Exp (150 NS) 18
128K Mem Exp (150 NS) 36
Sanyo Graphics Board 169
Joystick (Adj. Self-center) 16
Sanyo RS-232 Card 69
RS-232 Card 46
300 Baud Volksmodem 58
300/1200 Auto-Volksmodem 199
RGB Monitor 13" 269
Sanyo CRT 50 389
Sanyo CRT 70 565
Green Monitor 12" 89
Amber Monitor 12" 89
Panasonic 1091 NLQ 299
Panasonic 1090 229
Nashua DS/DD 5¼" 16

BORLAND INTERNATIONAL
Turbo Pascal 3.0 54
Turbo Tutorial 31
T Pascal w/8087 or BCD 85
T Pascal w/BCD & 8087 97
Turbo Toolbox 43

INFOCOM
Zork Series (EA) 32
Hitchhiker's Guide 32
Cutthroats 32
Infidel 32

NORELL
LISP/88 Intrp. 34
Computer Chef 34
Original Adv. 17
Hermit's Secret $17
Phantom's Revenge 17
Word Wiggle 24
Munchkin 17
Eliza 17
Monster Rally 17

MICHTRON
Type Right 27
Solarsim 38
Calendar 19
Mudpies 27
Connerman 30
Picasso (256K) 75
DS DOS+ II 2.11 38
DS DOS+ 1.25 22
MI-Term (128K) 60
M-Disk (256K) 27
Freez Frame (128K) 30
MI-Key (128K) 27
Graffiti (256K) 30
Cashman 27
Demon Seed 27
DC-10 Flight Simulator 30
Rebounce 19
Solitaire 27
Adventure Disk #2 30
Adventure Disk #3 30
Super Zap 38
Business Agreements 38
Major Motion 24
Quick & Simple 38
Soft Spool 27
Emperor 27
Time Bandit (128K) 27
Master Graph (128K) 68
Rebounce 19
Mighty Mail 75
King Arthur 19
Thunder Chief (128K) 27
Joystick Ext. Cable 22
Tic Tac Toe 19
Printer Helper 27
Transfer $45
Personal Money Manager 38

MICROSOFT
MS-DOS Guide 18
MS-DOS Prog. Ref. 38

OLYMPIC
Account Series (EA) 75
Postmaster II 38
Money Analysis 29
Finance Manager 29
Appointment Book 29
Touch Skills 29
States & Capitals 23
Body Systems 29
Trivia Mania 29
Flyboy Flight Sim. 29
Byte Buster 23
Flash Card 23
Blackjack 30
Spelling Bee 30
Recruiter 60

A-OK
Lotusan 550 47
Star Polish 110
DOS-1 w/Print Screen 46
DOS-2 w/Print Screen 56
DOS-3 w/Print Screen 66
DOS-4 w/Print Screen 66

COMPUTER TOOLBOX
Intellicom 57

U.S. DIGITAL
CpEmulaton 73
Prep 45
General Ledger 150

2500AD
8086 Macro Assembler 89

TLS
Sanyo Bonus Pack 29
Easy Planner/Filer 23
Sanyo 775 39

MANUALS
Basic Reference 29

2726 PARK ST., JACKSONVILLE, FL 32205

Orders with cashiers check, money order and VISA/MC shipped promptly • For personal/company checks allow 3 weeks for clearance • CODs add $3.00 • 15% restocking charge • All software sales are final • For VISA/MC add 3% • Shipping charges extra, $3.00 minimum • Prices may differ in AA stores • Florida reisdents add 5% tax • Prices subject to change without notice.

SANYO 550 OWNERS: Receive A Diskette With Latest Updates Of Sanyo:

1. User Groups
2. Software For Sanyo
3. Exchange of Programs (SUPPLIED VIA PUBLIC DOMAIN)
4. Bulletin Boards
5. List of Sanyo Magazine Articles
6. Hardware For Sanyo

64K Memory Upgrade $28.00
Flight Simulator Patch $5.00

SEND $8.00 TO:

DIVERSIFIED COMPUTERS
204 STONEWALL DRIVE
P.O. BOX 1083
SPRINGFIELD, TN 37172-1083

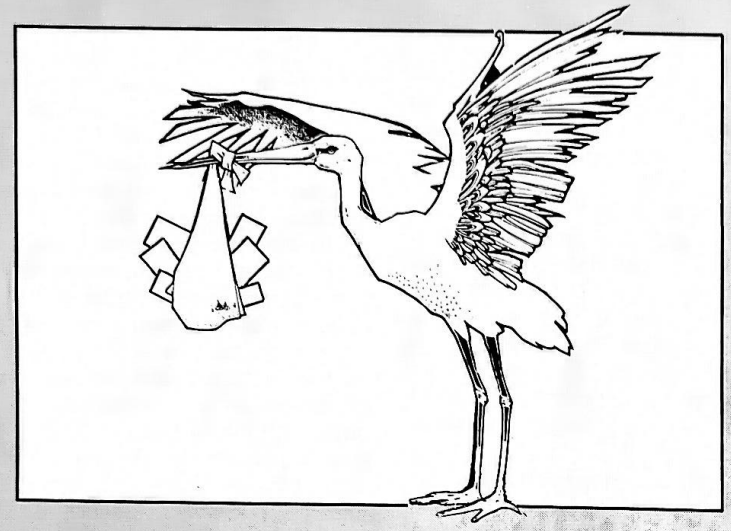
OR

DIVERSIFIED COMPUTERS
623 RED LANE RD.
SUITE 104
BIRMINGHAM, AL 35215
Phone (205) 836-5049

VIDEO RAM BOARD USERS
MAKE THE INTELLIGENT CONNECTION!

MONITOR CABLE SWITCHING BOX.....$89.95
(sends ram-board output or original output to your RGB monitor. one button operation! fast hook-up, all cables included.)
SEND CHECK, M.O., MC/VISA, C.O.D.'s TOO !
R&R COMPUTER DEVELOPMENT INC.
P.O.BOX 386, ATLANTIC BEACH, FL.32233
PHONE: (904)241-7990
(When ordering by mail include MAKE & MODEL of your RGB monitor and your phone # so we can be sure to supply you with the proper hook-up)
(Not available for panisonic 1300, sanyo 70)
Please include $2.50 S&H, Fl.residents add 5%

SUBMITTING MATERIAL



Contributions to SOFT SECTOR are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

• **FORMAT:** Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550, 555 or 775. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

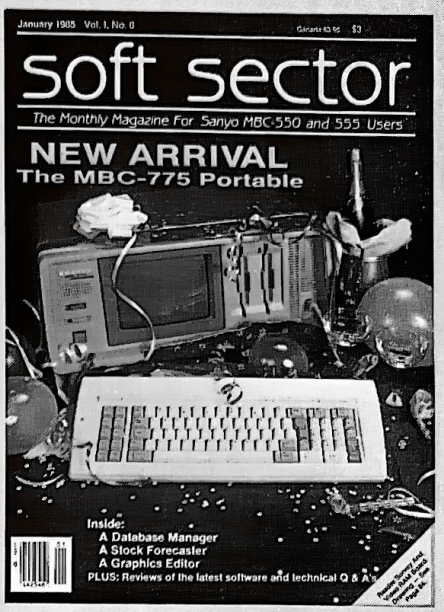
• **WHAT TO WRITE:** Anything with a practical application. If it interests you, it will probably interest a lot of others. However, we vastly prefer articles with accompanying programs which can be entered and run. The more unique the idea, the more appeal. We can prepare finished tables, diagrams and schematics from your rough draft *if* you provide legible copy and full directions. We have a continuing need for short articles with short listings.

We do pay for submissions, based on a number of criteria. Those wishing remuneration should *so state* when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send an SASE to: Submissions Editor, SOFT SECTOR, P.O. Box 385, Prospect, KY 40059. We will send you some more comprehensive guidelines.

Please do not submit programs or articles currently submitted to another publication.

soft sector



Back Issue Availability

Back copies of many issues of SOFT SECTOR are still available.

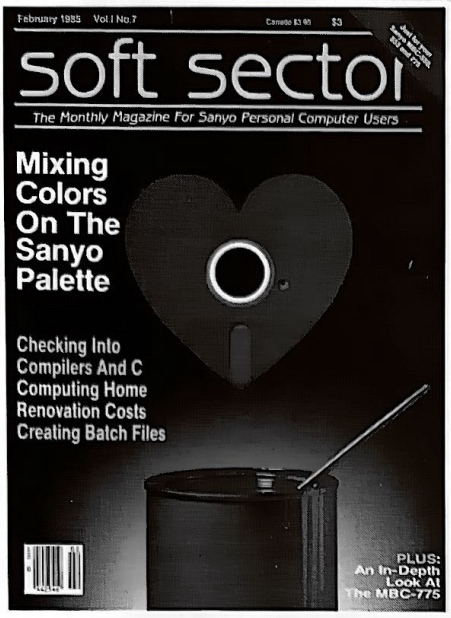
All back issues sell for the single issue cover price. In addition, there is a $2 charge for the first issue plus 50 cents for each additional issue mailed in the U.S. When possible, issues are mailed U.P.S. The postage cost in Canada and Mexico is $3 for the first issue and $1 for each additional issue.

VISA, MasterCard and American Express accepted. Kentucky residents please add five percent state sales tax. We do not bill and no C.O.D. orders accepted.

We suggest you order back issues you want now while supplies last.

To order, just fill out the form on the next page and mail it with your payment to:

Soft Sector
9529 U.S. Highway 42
P.O. Box 385
Prospect, KY 40059



BACK ISSUE ORDER FORM

☐ Please send me the following back issues:

(Payment must accompany back issue orders.)

NO.	MON.	YR.		PRICE	
1	AUG.	'84	PREMIER ISSUE	$3.00	☐
5	DEC.	'84		$3.00	☐
6	JAN.	'85		$3.00	☐
7	FEB.	'85		$3.00	☐
8	MAR.	'85		$3.00	☐
9	APR.	'85		$3.00	☐
10	MAY	'85		$3.00	☐

TOTAL _____

SHIPPING & HANDLING* _____

KY RESIDENTS ONLY

ADD 5% _____

TOTAL AMOUNT ENCLOSED _____

*** See reverse side.**

NAME _____ ADDRESS _____ CITY _____ STATE _____ ZIP _____ ☐ VISA ☐ MC ☐ AE CARD # _____ EXPIRATION DATE _____ PHONE # _____ SIGNATURE _____

Continued from page 68

Please keep the listings coming. Fill the magazine with useful programs and programming tips.

Burr Cook
Palmyra, NY

IT'S NO SECRET

Editor:

Sanyo has done it again. They have included another undocumented feature. This time, in the DOS supplied with the new video board — a text screen dump.

While inspecting the interrupt vector addresses for an unrelated reason, I noticed a specific address at INT 5, the IBM PrtSc vector. After some playing at the keyboard, I found that the CTRL-INS key combination (SHIFT-CTRL-DEL) prints the screen. This works in all text modes, including BASIC.

My curiosity was aroused. I have a copy of the Compaq graphics screen dump called GRAPHICS.COM. It installed without any problems and when called with CTRL-INS gave me a partial dump. I don't know why it wouldn't complete the screen, but someday when I have time, I'll investigate (unless, of course, somebody has already found out how to make it work and saves me the trouble).

You're doing a great job. Keep it up.

Larry Forman
Santa Barbara, CA

THE SEEKERS

Editor:

My son and I are still looking for interested people in the Syracuse, N.Y. area willing to start a Sanyo user's group. The dealer who sold me the Sanyo will not help. I wrote to Sanyo in New Jersey, but have yet to hear from them, so I would appreciate some help. [7869 Hawthorn Dr., 13088]

Frank Rosa
Liverpool, NY

Editor:

We have been attempting to organize a Sanyo user's group in the Montreal district. If any of your readers are interested in joining, they may contact me at (514) 695-2505.

Peter E. Avon
Pointe Claire, Quebec

VIDEO BOARD TIP

Editor:

I would like to share with your readers a discovery that I made using *CalcStar* with the new Video RAM Board. I use *CalcStar* to keep a checkbook register. When I installed the Video RAM Board, I did not care for the look of the spreadsheet on the new system. However, by eliminating the CONFIG.SYS and ANSI55.SYS files from my disk containing *CalcStar*, I found that the result was a very pleasing use of the new board's inverse video.

The only problem with the system is that the computer must be rebooted after using the *CS* disk because the absence of the two system files disables some of the DOS commands, such as CLS.

I would like to thank you and your readers for many of the wonderful suggestions found in your magazine. I was especially pleased with Ira Domsky's patch for removing the NUM LOCK and GRAPH key garbage in *WordStar* (April '85, Page 86). I look forward to other "Helpful Hints," especially those related to the Video RAM Board.

Hardy M. Cook
College Park, MD

THE CART BEFORE THE HORSE

Editor:

The excellent quality and detail presented in your magazine was a major factor in my decision to purchase a Sanyo. You should get a subsidy from Sanyo!

Ray Hyde
Gainesville, VA

Continued on page 92

SUBSCRIPTION INFORMATION

If you do not receive your copy of SOFT SECTOR by the 15th of the month on the cover, send us a card and we will mail another immediately via first class mail.

You must notify us of a new address when you move. Notification should reach us no later than the 15th of the month prior to the month in which you change your address. Sorry, we cannot be responsible for sending another copy when you fail to notify us.

Your mailing label also shows an "account number" and the subscription expiration date. Please indicate this account number when renewing or corresponding with us. It will help us help you better and faster.

For Canadian and other non-U.S. subscribers, there may be a mailing address shown that is different from our editorial office address. Do not send any correspondence to that mailing address. Send it to our editorial offices at P.O. Box 385, Prospect, KY 40059.

A-OK Computers

The Center of Creation and Dissemination of Sanyo PC Software and Hardware

The A-OK™ DOS Family

"Upgrade your MS-DOS 1.25 or 2.11"

All members of the **A-OK DOS** family add these features to your MS-DOS 1.25 or 2.11:

- **A-OK DOS** supports RAM expansion to 960K.
- **A-OK DOS** now includes *free* high-quality ramdisk software—**TurboDrive550** (a $33 value).
- Still the only text dump for 2.11 automatically transferred via FORMAT /S.
- Prints a screenful of text to any Sanyo-compatible printer.
  - Interactive mode
    - It works with one keystroke in DOS, BASIC and all other software packages that run on the Sanyo.
    - Does not interfere with program execution or affect the data.
  - Batch mode
    - Can be activated in BASIC by a one-line command.
    - Interrupt-driven and can be called from programming languages.
- Supports the only graphics screen dump software built into DOS—**PrintScreen550.**
- Includes a special "Sorted Directory" utility.
- Has a utility to strip the high-order bit off WordStar document files.
- User-controlled scrolling in all subsystems, not just DOS.
- **A-OK DOS** system messages are easier to understand.
- Supports up to 4 disk drives.

A-OK DOS versions for MS-DOS 1.25 correct flaws in MS-DOS 1.25 without sacrificing its strengths.

- All **A-OK DOS/1.25** are much faster and use far less memory than any version of MS-DOS 2.11.
- Runs all software that comes with the Sanyo.

A-OK DOS versions for MS-DOS 2.11:

- Run all software which runs on the Sanyo under MS-DOS 2.11 and Video Board.
- PLUS special support for Sidekick™ and Flight Simulator.™
- Support installable drivers for hard disks, etc.

Comparing **A-OK DOS-3** and DS DOS+, the *Sanyo PC Hackers Newsletter* states "In a nutshell, you get more for your money in A-OK's package". With the Video Board, **A-OK DOS** uses 24K less memory than the "competition". A-OK has tailored different versions of its DOS for varying disk drive configurations. This makes our ad more complex, but our DOS more efficient and easier for you to use.

A-OK DOS-1™

"Not just another Double-Sided DOS"

- Any combination of up to four single and double-sided drives.
- Double-sided drives support single and double-sided diskettes.
- 8 and 9 sector formats—360K, 320K, 180K, and 160K.

A-OK DOS-1/1.25 or **A-OK DOS-1**/2.11 and Video Board **$35**

A-OK DOS-2™

"Increase the Capacity of your Current Drives"

- All the features and formats of **A-OK DOS-1**
- PLUS it reads, writes, and formats 10-sector formats
  - 400K per double-sided diskette on DSDD drives
  - 200K per single-sided diskette on SSDD and DSDD drives
  - uses ordinary diskettes
  - pays for itself in saved diskettes.

A-OK DOS-2/1.25 or **A-OK DOS-2**/2.11 and Video Board **$45**

800K PER DISK DRIVE

A-OK DOS-3™

"**A-OK DOS** for Double and Quad-Density Drive Systems"

- All the features of **A-OK DOS-2**
- PLUS up to 4 double-density and quad-density drives
  - on double-density drives:
    - reads and writes all formats read by 1.25 and 2.11
    - reads, writes, and formats 200K SSDD diskettes
    - reads, writes and formats 400K DSDD diskettes
  - on quad-density drives:
    - reads, writes, and formats 730K and 800K on ordinary diskettes.

A-OK DOS-3/1.25 or **A-OK DOS-3**/2.11 and Video Board **$55**

UPDATE POLICY

We at A-OK are constantly improving our products if you are a registered owner of software developed by us, we will send you the enhanced version of that product for a $7 shipping and handling fee.

A-OK DOS-4™

"The *Standard* Quad-Density DOS"

- All the features of **A-OK DOS-2**
- PLUS up to 4 quad drives—3.2 Megabytes of *removable* medium!
  - quad drives read all diskettes written by MS-DOS 1.25 and 2.11
  - quad drives read, write and format 160K, 180K, 200K, 320K, 360K, 400K, 730K, 800K formats on ordinary diskettes.
  - will not run Prolok™ disks.

We at A-OK Computers thank you for making **A-OK DOS-4**™ *the* standard DOS for quad-density drives on the Sanyo. Thousands of copies of **DOS-4**™ are now in use in the most demanding applications—yours. Potential bugs have been identified and corrected, making **DOS-4** a mature, well seasoned tool. Your constant feedback has resulted in the successive refinement of our documentation. After thorough testing and comparison to would-be competitors, Scottsdale Systems, America's No. 1 seller of Sanyos, selected **DOS-4** as the standard DOS supplied with their Silver Fox™. (HAGEN-DOS™ is A-OK DOS-4). And of course, MidWest Micro Peripherals—one of America's largest sellers of computer equipment has selected **A-OK DOS-4** for their quad-based Sanyo. Because **DOS-4** is now the standard, our 720K and 800K formats are also regarded as the standard. Of the quad-density operating systems, only **A-OK DOS-4** supports the very popular **PrintScreen550.** *Soft Sector* sums it up well in their September 1984 review entitled "A-OK DOS and PrintScreen550—An Unbeatable Combination".

A-OK DOS-4 is the choice of OEMs. Don't trust your work to an experimental DOS, be sure your operating system is A-OK.

Look for these features in a quad-density drive DOS:

1. Still the *only* DOS which you can install with quad drives.
2. The system *automatically* recognizes 8/9/10 sector, 40 and 80 track formats without reconfiguration or using alternate drive symbols (e.g. E:, F:, etc.).
3. Free ramdisk—**TurboDrive550**™.
4. Uses low-cost ordinary double-density diskettes.
5. FORMATs, READs, WRITEs, and DISKCOPYs *all* MS-DOS standard formats employed by the Sanyo 550 Series.
6. Uses the standard **DOS-4** 730K and 800K formats.
7. Built-in text screen to printer dump.
8. Supports the *only* graphics screen dump software built into the DOS-**PrintScreen550.**
9. Unique support for Lotus 1-2-3™ and Picasso™ on quad drives.

A-OK DOS-4/1.25 or **A-OK DOS**/2.11 . . . . . **$55**

PrintScreen550™

"Fast, High-Resolution Graphics and Text from Screen to Printer with One Keystroke"

- **PrintScreen550** now includes **KeyClick**™, an optional pleasant click sound each time a keystroke is successfully entered.
- **PrintScreen550** is designed for the everyday needs of most users.
- **PrintScreen550** capabilities
  - Prints a screenful of graphics to most popular printers.
    - This prints everything on the screen whether it's graphics or text.
    - User has the option to rotate the image on the paper. This permits Okidata 92s and other printers with less than 640 horizontal dot positions to print out the full screen.
    - Turns your Sanyo into a high-resolution graphics machine.
      - Multiscreen facility permits a printed image to be 640 dots by an almost unlimited number of dots in the perpendicular direction.
- **PrintScreen550** is flexible and easy to use.
  - Interactive mode
    - Works like the "Print Screen" button on the IBM-PC.
    - One keystroke does it all. No need to embed commands in BASIC. No extra programs to execute. Same single keystroke works in DOS, BASIC and all other software packages that run on the Sanyo.
  - Batch mode can be activated in BASIC by a one-line command.
- **PrintScreen550** is very fast and a lot of fun!

A-OK's PrintScreen550 software pulls the Print Screen button off the IBM-PC and puts it on your Sanyo MBC-550 Series computer.

PrintScreen550 now supports the Video Graphics Board.
PrintScreen550 is an option to any A-OK DOS for a meager **$24**

Orders may be placed immediately.

Please send money order or cashiers check. Personal or company checks require 2-3 weeks to clear. Prices reflect a 3% cash discount. MasterCard/VISA/CHOICE accepted. MD residents add 5% sales tax. Out-of-state order, no tax. Prices subject to change. All brands are registered trademarks. 20% restocking fee for all returned merchandise.

A-OK Computers 816 Easley St., Suite 615 • Silver Spring, MD 20910 301-585-5105, 301-588-8446

© Copyright 1984, 1985 Apollo Optics & Kinematics, Inc.

The First Great Soft Sector One-Liner Contest

We are pleased to announce these initial five winners of The First Great SOFT SECTOR One-Liner Contest. The authors of these winning entries will receive a copy of the June release of SOFT SECTOR ON DISK.

To briefly restate the rules of the contest, begin the program with the number one and end it in a single line. Anything else goes. Entries will be accepted in either Sanyo BASIC or GW-BASIC. Include a printed listing, a title for the program, and a short explanation of what it does, and send it to The First Great SOFT SECTOR One-Liner Contest, P.O. Box 385, Prospect, KY 40059.

VAN GOGH

Here is my entry to the First Great SOFT SECTOR One-liner Contest. I call it *Van Gogh*. It was written using a Sanyo MBC-775 Portable using BASICA. However, it should work on any machine running Microsoft's GW-BASIC, including the IBM.

This program draws a pattern made up of six sets of nested, similar ellipses in color in a random pattern on the screen, erases the screen and begins a new pattern. When typing the program, do not include any spaces after the colons or around the equal signs, as the line length is very close to the maximum allowed in BASIC.

The program uses all the parameters of the CIRCLE command. The syntax, for those who have not explored it fully is:

```
CIRCLE (x-pos,y-pos),radius,color,begin_angle,
end_angle,aspect_ratio
```

To make it work best, enter these commands first:

```
SCREEN 1
COLOR 1,1
```

```
1 CLS:FOR J=1 TO 6:K=.5+3*RND:X=-6Ø+38Ø*
RND:W=5+1Ø*RND:Y=-4Ø+28Ø*RND:Z=2+6*RND:R
=2Ø+14Ø*RND:S=3+6*RND:A=.2+2*RND:E=3+3*R
ND:F=-.Ø2-.Ø7*RND:B=3*RND:C=.Ø2=.Ø7*RND:
N=7+15*RND:FOR I=1 TO N:X=X+W:Y=Y+Z:R=R+
S:B=B+C:E=E+F:CIRCLE(X,Y),R,K,B,E,A:NEXT
 I,J:GOTO 1
```

Dave Alexander
Wappingers Falls, NY

3-D WRITER

The name of my program is *3-D Writer*. When the user types in a word with a space between each letter, it will show it in 3-D on the screen. You must put a space in for the best effect.

```
1 CLS:INPUT "TYPE IN A WORD WITH A SPACE
 BETWEEN EACH LETTER";W$:FOR A=5Ø TO 6Ø:
SYMBOL(A,A+5) ,W$,4,4,4:NEXT A:FOR B=1 T
O 7:SYMBOL(A,A+5) ,W$,4,4,B:NEXT B
```

K.C. Stewart
Tolland, CT

NEON SIGN

Here's how my program works. First, it clears the screen, then it prints a string of characters like a neon sign that runs across the screen.

```
1Ø CLS:A$="Welcome to the First Great SO
FT SECTOR One-Liner Contest. Let your Sa
nyo impress your imagination. ":I$=INKEY
$:WHILE I$="": LOCATE 1,2,Ø:PRINT LEFT$(
A$,79);:A$=MID$(A$,2)+LEFT$(A$,1):WEND
```

Phetsomphoy Lon
Petaluma, CA

STRIPPER

The following line of code will strip the ever-elusive eighth bit from the lines of *WordStar*. It was written to make use of *WordStar* files in BASIC programs for a BBS and text adventure. All you have to do is enter an input and output filename (not the same) and the program will do the rest. This has been *very* useful, because even "pure text" non-document files won't load properly.

```
1 CLS:INPUT"Input Filename";F1$:INPUT"Ou
tput Filename";F2$:OPEN"I",1,F1$:OPEN"O"
,2,F2$:WHILE NOT EOF(1):LINE INPUT#1,A$:
B$="":FOR A=1 TO LEN(A$):B$=B$+CHR$(ASC(
MID$(A$,A,1))AND 127):NEXT:PRINT B$:PRIN
T #2,B$:WEND:CLOSE:PRINT "Done!":BEEP
```

Paul Miller
Wirtz, VA

THE GREAT BALLOON RACE

This program draws a balloon and uses GET to capture the picture. It then uses three PUT statements to display a race between the balloons.

```
1 COLOR 4,1:CLS:DIM P(15,2Ø):CIRCLE(32Ø,
16Ø),2Ø:PAINT(32Ø,16Ø),4,4:LINE(3ØØ,16Ø)
-(31Ø,18Ø),4:LINE(34Ø,16Ø)-(33Ø,18Ø),4:L
INE(33Ø,18Ø)-(31Ø,19Ø),3,BF:GET(35Ø,193)
-(29Ø,15Ø),P:FOR I=15Ø TO 2Ø STEP -1 :PU
T(3ØØ,I),P:PUT(1.5*I,I/.9),P:PUT(6ØØ-I,I
/.8),P:NEXT:CLS
```

John C. Hensen
Weidman, MI

A-OK Computers

The A-OK Board™—The Ultimate Upgrade™
"960K + 7.16 MHz"

The A-OK Board lets you double your processor speed and nearly quadruple your RAM. **The A-OK Board** plugs inside your Sanyo with no soldering. **The A-OK Board** works fine with or without the Video Board and is fully compatible with all software which runs on your Sanyo. **The A-OK Board**'s 8088-2 chip does all your processing, even Ramdisk, twice as fast. Plug one bank of 256K chips into **The A-OK Board** to double your RAM to 512K or two banks for 768K or a third bank for 960K of contiguous RAM. See our **TurboDrive550** ad about 800K ramdisks. Options include a real-time clock/calendar. Available probably by the time you read this. Call for A-OK's low price and to learn about the **A-OK Board**'s other fine features.

StarPolish™
"Makes Your WordStar® Shine!"

StarPolish upgrades WordStar to new useful capabilities.
"What you see is what you get."

- Enhanced Screen Attributes
  - Using "polished" WordStar, you actually see on your screen **boldfaced** and underlined text. Super^{scripts} are raised and smaller, sub$_{scripts}$ are lowered and smaller. You can also see text *italicized*. Of course, you also see on your screen combinations of these features.
  - No more ^B or ^S to complicate your work.
  - No more fouled up output because of unmatched control codes.
- Expanded Printer Support
  - **StarPolish** patches WordStar to provide full support for the features of popular dot matrix and ink jet printers.
  - If your printer is not on the menu, **StarPolish** leads you through printer installation by a series of questions. You can even install a laser printer.

Technical Symbol Support and Keyboard Map.
Now you can use scientific and engineering symbols in your WordStar documents and print them out on your dot matrix printer. This level has an on-screen map of the keyboard to show you what key produces what symbol. Polished WordStar is completely compatible with unpolished WordStar, MailMerge®, and SpellStar®.

StarPolish is a trademark of TDI Systems, Inc. A-OK is the sole rep. for the Sanyo versions.

StarPolish Sanyo MBC 55x version $125
Call A-OK about availability.
StarPolish Sanyo Video Board version $125
StarPolish IBM Version $125

LotuSan550™
"Lotus Without the Video Board"

LotuSan550 lets you run Lotus 1-2-3™ on your Sanyo without the hassle and expense of the Video Board.

- **LotuSan550** is easy to use
  - Use Lotus as installed for IBM PC
  - Full use of Lotus' fine features
  - Uses Sanyo's 640 × 200 high-res graphics.
- Because you don't need the board you save over $100 and you can run Lotus and have a hard disk
- **LotuSan550** is for Lotus and only Lotus
  - **LotuSan550** will not help you run the *pfs* series, Flight Simulator, etc.
  - But, if it's Lotus you want, we believe you'll prefer **LotuSan550**.

LotuSan550 . . . . . $55

Janus/Ada
"The Ada for Micros"

Now you can use the language of the future on your Sanyo, IBM, Zenith, etc. For just $99, you get the **Janus/Ada** Compiler, Linker, Libraries, Example Programs, User Manual, and User Group Membership! Great for learning Ada and for serious programming.

Janus/Ada C-Pak $99

N-Code™
"If You are Serious about Data Security"

N-Code for the Sanyo MBC-550 Series or IBM PC $79

Microsoft FORTRAN 77 (limited supply) $249

"AMBIZ-PAK"™

Fifteen programs for Amway Product Distributors **$100**

TurboDrive550™
"A Quality Ram Disk for Sanyo"

TurboDrive550 turns your unused RAM into a disk drive.
TurboDrive550 is very fast.

- Speeds up all disk intensive software.
- Makes WordStar and FORMSORT run more quickly.
  - Accesses disk 75,000 times faster than hard disk.
- Makes 800K ramdisks on the **A-OK Board**.
  - Using the new **A-OK DOS-3** with your single or double-sided drives.
  - Using the new **A-OK DOS-4** with your quad drives.

TurboDrive550 is a low-cost alternative to a second disk drive.
Compare **TurboDrive550's** features to the competition.

- **TurboDrive550** works even if you only have 128K.
- **TurboDrive550** protects you from allocating more space than is available.
- A-OK provides a COM file in MS-DOS 1.25 which lets you gracefully free **TurboDrive550**'s space.
- **TurboDrive550** lets you use its menu or parameters.

TurboDrive 550 is The Phantom Buster.

TurboDrive550 comes **FREE** with every new **A-OK DOS 1-4™** and is available as a $7 upgrade to current **A-OK DOS** owners.

TurboDrive550 for other Sanyo DOSs $33
(The best deal is to buy **A-OK DOS-1™** for $35 and get **TurboDrive550** free.)

Contact!
"Mailing Lists and More"

Contact! makes it incredibly easy for you to create and maintain business and personal mailing lists. **Contact!** prints mailing labels in the order you want and creates files ready for MailMerge. **Contact!** even prints out your address book complete with phone numbers.

Contact! $35

UPGRADE TO 800K PER DRIVE

Increase your disk capacity to 800K per drive using A-OK's **DSQD Kit™** which includes: 2 first quality new TEAC 55F double-sided quad-density (DSQD) drives which replace the TEACs in your Sanyo, **A-OK DOS-4**, complete easy instructions, and all parts needed.

DSQD Kit $399

DSDD Kit™

Upgrade to 400K per drive—same as DSQD Kit but with 2 TEAC 54B drives and **A-OK DOS-2.**

DSDD Kit $359

VidSwitch550™

Just push a button on the left front side of your Sanyo and you've switched from the Sanyo graphics port to the Video Board port. Another push of the button on this small box switches it back. The monochrome version requires only the mono cable you already have. The color version requires no extra cables. Everything just plugs in.

VidSwitch550—Monochrome $29
VidSwitch550—Color (no sync inversion) $69

XCord550™
"Extension Cord for your Sanyo PC Keyboard"

XCord550 6 foot **$15**
XCord550 12 foot **$25**

RS232C Serial Boards $72
128K Memory Upgrade Kit 150ns chips $49

THE A-OK TEAM

Join the team that created the **A-OK DOS** Family—the choice of OEMs, **PrintScreen550, TurboDrive550, The A-OK Board** and other top-quality software and hardware. We sell only the best. Fewer titles, better promotion. Give us a call. Join the **A-OK Team.**

SEE OUR OTHER FULL-PAGE AD FOR ORDERING INSTRUCTIONS.

DEALER, DISTRIBUTOR, AND OEM INQUIRIES INVITED

New Shipping System

You have made our products so popular that we've been swamped with orders in response, we recently beefed up our shipping department so that any order, large or small, will be swiftly shipped. Our goal is that every order will be shipped within 24 hours. We at A-OK thank you for supporting our products.

A-OK Computers 816 Easley St., Suite 615 • Silver Spring, MD 20910 301-585-5105, 301-588-8446

© Copyright 1984 Apollo Optics & Kinematics, Inc.

REVIEWS

Software review

EZWTOTXT — A Little Something For *EasyWriter*

EZWTOTXT is a rather strange name for a program, but it is really very descriptive. It converts *EasyWriter* files to ASCII files. *EasyWriter* to text. And it does it well.

Why would anyone wish to convert *EasyWriter* files to ASCII? For a number of reasons: to allow use of the PRINT.COM file on your DOS disk, to use *EasyWriter* files with *WordStar* or another word processor, or to use *EasyWriter* files with a print spooler that will only work with ASCII.

When I first got my Sanyo, I started using *EasyWriter* because it was easier to learn than *WordStar*. I generated a number of *EasyWriter* files and then switched to *WordStar*. *EZWTOTXT* allows the *EasyWriter* files to be put on my *WordStar* disk in ASCII form. I can then call them up as a document type file, edit them, and save them as *WordStar* files.

Suppose you use *EasyWriter* all the time. You can still get a lot of use out of this little utility. The PRINT.COM command allows you to print text while doing other work with your computer. If you need to use this command, just convert your files to ASCII and start printing. There are also a few commercial print spoolers that will not work, or will work very slowly, with word processor files. Putting them in ASCII form first can save a lot of trouble.

Another nice thing about *EZWTOTXT* is that if you have another MS-DOS computer around, all you have to do is set up a CONFIG.SYS file using ANSI.SYS and *EZWTOTXT* will run just fine. This applies to the Sanyo 775 as well as the IBM and all its clones.

If you use *EasyWriter*, or have used it in the past, this is definitely a worth-while utility to own. It isn't a glamorous program — few utilities are — but it is a very useful and a functional piece of software at a reasonable price.

No review would be complete without some comment on documentation. No need to worry about this one — there isn't any at all. The good news is that you don't need any. Just put the disk in, type *EZWTOTXT*, and the rest is *EZ*.

(Sigma Research Associates, 5666 La Jolla Blvd., Suite 107, La Jolla, CA 92037, 619-459-2743, $14.95)

— Jim Pile

FLOPPY STORAGE UP TO 3.2 MEG!!!

External Drive Kits

$115. ($85. with Drive Order)
Includes all Cables & Instructions.
Holds up to 2 Drives.

DISK DRIVES
TEAC SS, DD (200K) $105.
TEAC DS, DD (400K) $139.
TEAC DS, QD (800K) $135. SALE
Second Drive $10 Less
1 YEAR WARRANTY ON ALL DISK DRIVES

MT BASIC $49.95
MULTI-TASKING & WINDOWING
BASIC COMPILER Yields Fast
Machine Code for the SANYO.

TOLL FREE ORDER LINE & LATEST PRICES: 800 245-6228
NOTE: Add $35. for AOK DOS which gives 8,9 or 10 sectors per disk and up to 0.8 meg per drive!!!
M.C. & VISA Accepted

OWL-Services
P.O. Box 116-D
Mertztown, PA.
19539

800 245-6228
PA Res Include 6% Tax
PA (215) 682-6855

InfoStar Training Programs

Witech Tutorial for DataStar and **Witech Tutorial for ReportStar** — Each includes a two-disk tutorial and 50-page handbook with exercises, reference section and sample applications. All principal procedures are explained, including many of the more difficult features, such as the use of logical expressions. Sample applications show how DataStar and ReportStar can be applied to sales analysis, academic research, billing, recording tax deductions and other applications. Sold separately at $39.95 each or together for $69.95. Include $3.00 shipping.

Witech Corporation, P.O. Box 2056, Santa Clara, CA 95055

Sanyo Text Dump — A High Level Screen Dump Utility

I was given a very useful program to review. In fact, it is so useful that it is hard to get along without it. At present, there are probably more than 200 screen dump utilities available for the Sanyo, and there are probably more on the way, but they are graphic screen dumps.

What if all you wanted to dump was text? Up to now, you would have to spend the extra money and get a screen dump that would do graphics and text. You could then use the text part and let the graphic part sit there. Now you can buy the text dump separately, if that is all you need, and it costs less than a graphic screen dump.

There are other advantages to a text only screen dump. One is, that it is not printer dependent. By this, I mean that it should work on any printer — this includes daisy wheel printers — unlike the graphic screen dumps that have to be set up for a particular printer. Another obvious advantage is that it gives you the ability to send to the printer, any text that is on the screen at any time in any program. You can get a snapshot of the screen, as long as it is text.

I have tried this program on many other pieces of software. I used it in *WordStar*, Sanyo BASIC, Turbo PASCAL, and other programs and languages. The screen dump worked on all of the programs with no problems at all.

If all you need is a text screen dump, and you are not at all interested in a graphic screen dump, then this is a very good program. The *Sanyo Text Dump* from Level IV Products does everything that it was made to do, and does a good job of it. So, if you're out there with a daisy wheel and need a screen dump, or just need a text dump, then you need this.

(Level IV Products, Inc., 28194 Schoolcraft Road, Livonia, MI 48150, 313-525-6200, $19.95)

— Pat Brestel

CORRECTION

There was a line of type omitted from the Helpful Hint on Page 86 of the May issue of SOFT SECTOR, which patches *WordStar* so that the DELETE key will delete the character beneath the cursor and the left-delete key will delete the one to the left of the cursor. Following is the complete patch with the correction highlighted.

First, using a backcopy of `WS.COM`, enter `DEBUG WS.COM`. Now we have to find the first patch address. Enter `E498`. A OD should be there. Type `AE` and then a space. Now you should see a 7E. Type `83` and then hit RETURN.

Only two more numbers are left to alter. Enter `E6E6`. A 08 should pop up. Type `13` and then a RETURN. *Finally, enter* `E71C`. *You should see a 7F. Type* `07` *and hit RETURN.*

That completes the editing. To make the patch permanent, type a `W` and hit RETURN, then a `Q`, and another RETURN. Your changes are now saved to disk.

Thanks once again to James J. Allen, of Stevens Point, Mi., for sharing the patch.

MODEM SOFTWARE, RS232, AND WESTERN UNION EASY LINK TERM-123 BY TIM PURVES SUPPORTS DFT, SDT, ASCII, UP AND DOWNLOADING, ALL IN MACHINE LANGUAGE AND IS FULLY INTERRUPT DRIVEN. A SUPER $240.00 VALUE, NOW ONLY $99.

HAVE YOU EXPANDED YOUR SANYO? ADDED MEMORY? DOUBLE SIDE DRIVES? LOTUS BOARD? IF THE ANSWER TO ANY OF THESE IS YES THEN YOU HAVE A POWER PROBLEM, WE CAN FIX IT!!!! POWER SUPPLY UP-GRADE KIT AND INSTRUCTIONS $29.95

FLOPPY DRIVES (160k-360k-800k) INTERNAL OR EXTERNAL $CALL$

CBBS-PBBS COMMERCIAL OR PERSONAL BULLETIN BOARD SYSTEMS BY TIM PURVES, THIS ONE DOES IT ALL, EASY TO CONFIGURE, EASY TO USE. IT MAKES YOUR COMPUTER A 24 HOUR PER DAY SALESPERSON $99.95 OR $59.95

SYNC INVERTER, USE A PANASONIC OR OTHER NEGATIVE SYNC RGB MONITOR WITH THE LOTUS BOARD, IT ALSO PERFORMS THE CABLE ADAPTATION YOU NEED. $39.95

HARD DRIVES (5 MEG - 10 MEG) INTERNAL OR EXTERNAL $CALL$

POWERLINE FILTERS, PROTECTS YOUR VALUABLE INVESTMENT FROM DAMAGING "SPIKES" ON YOUR A/C POWER CIRCUIT. SIX OUTLETS, 15AMP, M.O.V. TECHNOLOGY. (3) MODELS $39-$49-$59

** BRAND NEW ** UNLOCKIT, A PROGRAMMER'S UTILITY BY TIM PURVES, UNLOCKS AND REMOVES THE PROTECTION ON A PROGRAM SAVED WITH THE "Q" OPTION IN SANYO BASIC $29.95.

MEMORY UP-GRADE KITS WITH FULL INSTRUCTIONS TAKE YOUR SANYO ALL THE WAY TO 512k OR ADD 64k BANKS AS YOU NEED THEM. SOLDERING SKILLS REQUIRED. $CALL$ FOR QUOTATIONS

KEYBOARD EXTENDER CABLE ADDS SIX FEET OF REACH $12.95

** NEW ** LEVEL IV's SANYO CATALOG, SOFTWARE, HARDWARE, ACCESSORIES, UP-GRADES AND MORE. PURCHASE PRICE IS REFUNDABLE BY COUPON ON YOUR FIRST ORDER. ONLY $3.00

** NOTICE ** PRICES CHANGE FASTER THAN OUR ADS CAN, USUALLY DOWN! CHECK OUR DAILY DISCOUNT PRICES WHEN ORDERING ANY ITEM. WE PRICE ALL OF OUR PRODUCTS ON A COST PLUS BASIS!

** DEALER AND GROUP PURCHASE DISCOUNTS ARE AVAILABLE **

LEVEL IV PRODUCTS, INC.
28194 SCHOOLCRAFT ROAD
LIVONIA, MICHIGAN 48150
(313) 525-6200

FACTORY AUTHORIZED SANYO SALES/SERVICE CENTER

DEALER INQUIRIES INVITED

VISA/MASTER CARD/CHECKS/C.O.D.

SHIPPING/HANDLING/INSURANCE 2% ($3 MINIMUM)

Software review

Sanyo Host and Bulletin Board — To Be a SysOp

Setting up a bulletin board system is a little like setting up a business. You set up your products such as your bulletins, programs and wit, put up your sign and your phone number and hope for customers.

As with business, a certain level of skill, knowledge and equipment is required. You will have to get a bulletin board program. Of course you need a computer system and a smart 300/1200 Baud modem. (And don't forget that you will need a telephone.) You will have to get all this working together, and you will need a friend with a similar setup to assist in checking it out.

If you are a first-time bulletin board operator, setting up and running a system will be a learning experience. You will learn some communications, some computer skills and some philosophy. Bulletin board systems are very popular now. Almost every computer store has one — or has had one. They come and they go, and they feed each other with ideas and goods. If you are running a bulletin board system, you might be looking for new and better BBS programs.

So, how do you get started with a bulletin board system of your own? Bulletin board systems are usually cloned from other bulletin board systems. Most of these are in the public domain, and some bulletin board systems will let you have a copy of themselves. As with everything else, you get what you pay for here. The cost of a free program is that you have to reverse engineer it to be able to understand it enough to use it.

When things become popular enough, and practical enough to become potential markets, someone will create a product for that perceived market. And we have here under investigation such a product, a bulletin board system that you can buy.

The *Sanyo Host and Bulletin Board* for the Sanyo MBC-550 series computer is the program and system we are reviewing.

The software comes in a full-size three-ring binder. I like that. No dinky little pages here. It is also cheaper. Within the manual there is a bag with a 16-pin IC connector with two wires coming out. These are to be installed inside the Sanyo to provide a means of getting the carrier and speed signals from the modem, since there are no such signals available via the RS-232 port. The authors are using the game port to detect these signals. This is a workable solution. Installation takes no soldering and can be done quickly. It allows use of a dumb modem. It does take up the game port connector, so if you are using a joystick, you will need to buy an adaptor.

Properly speaking, this program is the host program and a "do-it-yourself" terminal program in BASIC. The BASIC program that is provided is the starting point and is a

Small business accounting has never been easier...

LPR Bookkeeper Accounts Receivable, Accounts Payable, General Ledger and Inventory

Single Module $150

Tri-Pak $375 AP, AR, GL

Quad-Pak $475 AP, AR, GL, INV

Minimum requirements: dual disk drives, most 80 column printers.

For Sanyo MBC 555 with 160/360Kb drives and IBM PC® and compatibles.

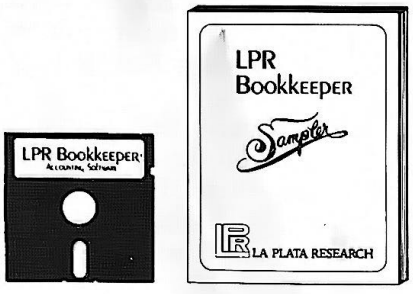
Beautifully Simple!

LPR Bookkeeper, designed especially for small businesses, is a completely menu driven double entry accounting system with excellent documentation.

Powerful!

Dynamic file allocation allows an average of 200 accounts with over 750 monthly transactions on 160Kb drives.

Does everything you'd expect a powerful accounting system to do: prints invoices, statements, checks, trial balance, profit & loss, balance sheet, detailed ledgers, sales analysis & extended standard reporting, on-hand/re-order reports, and global pricing. Other features include Rolodex® cards, mailing labels, auto billing, finance charges, auto/manual invoice pay selection, auto interfaces and three color displays.



Or order the **$10 Sampler** manual and diskette, which includes samplings of displays, reports and manuals.

Everything considered, including a ninety-day limited warranty, LPR Bookkeeper is **Simply Beautiful!**

LA PLATA RESEARCH

Dealer inquiries invited

PO Box 10612 Farmington, NM 87499

(505) 326-5833

full, working program, but you are expected to revise it to suit your needs. There are four other program files to do the usual file edits and configuration. The system is loosely tied together with .BAT files. There is also an AUTOEXEC.BAT file so you can boot right into installing the host program and running the BASIC program *Terminal*. This bypasses the date and time sets for MS-DOS and relies on the first caller to set them.

To evaluate this program, I set up a "toy" bulletin board system and invited people to call. The system was a Sanyo MBC-555, using the Hawthorne SANSIO serial board and an early model US Robotics Autodial 212A. The installation of the sensor went without trouble. The drawing provided is clear, except there could be an indication of where Pin 1 starts, since you have to count the pins anyway.

With the sensor installed, the host configuration program was used, and hopefully set up for the USR modem. If you have something other than a Hayes or USR modem, you will have to have your modem manual and set up the control strings for it. There is no mention of the purpose of the illustrated control strings.

Next, the terminal program was edited so I could become the SysOp of record. That should have been enough to try out the program. The USR modem was left in its default, factory configuration. Well, this was the beginning. Finally, with the modem set to ignore DTR and to keep Pin 8 high, the system started working. It answered calls but the callers were getting overrunning characters on their displays. I did not know the answer to that. The system worked fine when hooked directly to a CPM machine and the callers were using similar machines.

I called Ralph Landry at Michigan Software. (The number is on the front of the manual.) Mr. Landry is one of the authors of the program. He was kind enough to call into the test BBS and confirmed the problem. We were able to talk at 300 Baud and this operation showed one of the nice things about this program. The *Host* program can also be used to let you use a remote terminal on your Sanyo. This has to be initiated at the Sanyo. When I hit BREAK we dropped out into BASIC and Mr. Landry found the line that held the default delays between characters and asked me to change it from zero to eight. Then we hung up and he called back at 1200 Baud. That cleared up the garbled screen problem and the BBS was functional.

Some of the message headings, and the bulletin headings supplied as examples for the program, had words misspelled in them. After the English was corrected, people were asked to call.

The callers were asked to comment on the BBS. Message handling was solid. Callers had no trouble using the system and the main questions were about message privacy. Since callers can see the private messages they have written, they wonder if others can also. The way it is set up now is correct — originators can see the message but others cannot. The other main comment was that the BBS could be a little more friendly; for example, when there are no messages, there is no indication that the system even looks, it simply drops into the command mode. The SysOp can fix these things easily by editing the TERMINAL.BAS program.

We could not get download to work. There is no discussion of the transfer protocol used. Buried in the description of the host call parameters is the mention of Sanyo Direct Transfer (SDT), and I, who have been dealing with Sanyos for a long time, have no idea what that is.

From the SysOp point of view, the system could be a lot more friendly. When the system is active with a caller, the Sanyo reflects everything and its keyboard is active too. You could even overwrite the caller's input. *Host* is a single-user system, so when the caller has the computer, you do not. And when you want to use the system you must sign on like any other caller, i.e., remote calls and the Sanyo keyboard are treated exactly the same. The only privilege you have as a SysOp is that you can see and delete messages. Anything else you want to do you have to get out of the system and into BASIC and run utility programs. Oh well, you can rewrite all that anyhow.

The assembly language program, *Host*, provides a good foundation for a BBS. It has 16 functions that can be called from BASIC or any other language that observes the BASIC calling parameter sequence.

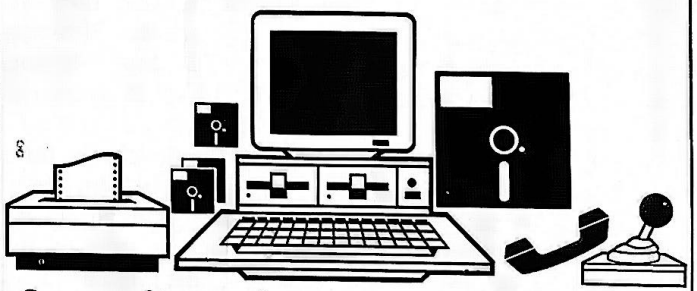
The manual is not satisfactory for a commercial program. Its state, as reviewed, is suitable for hobby documentation, but it does not meet my minimum standards for a commercial program. There is no discussion of modem setups, of the Sanyo Serial IO board. There is no discussion of file transfer protocols or even mention of which terminal programs can call the BBS.

If you know modems and BASIC and communications, this program might form the basis of your own BBS. It has most of the work done.

(Michigan Software, 43345 Grand River, Novi, MI 48050, 313-348-4477, $179.95)

— Harold L. Reed

Canadian Sanyo owners and dealers



Compusoft manufactures and distributes Michtron software programs in Canada.
We fully support the Sanyo 550 and 555 series of computers. Please write for your FREE catalog and newsletter.

COMPUSOFT

P.O. BOX 11659, EDMONTON, ALBERTA T5J 3K8, (403) 429-2098

RightWriter — A Program To Help Improve Writing Skills

Right Writer is an automatic proofreader designed to run on the IBM or a compatible. It also runs well on a Sanyo 550 series machine with or without the video board.

Right Writer analyzes *WordStar* and other word processor documents for errors in grammar, usage, punctuation and style.

One of *Right Writer*'s nicer features is that it will pinpoint slang, cliches and wordy phrases. Phrases such as "if I may call your attention to the occurrences of . . ." will bring immediate criticism down on your head.

Right Writer uses the Flesch-Kincaid formula to determine the readability index. The Flesch-Kincaid formula assigns a readability index on a reading grade level. The longer the sentences and words, the higher the reading grade level. Most newspaper writing is at a sixth or seventh grade level. Short stories I have checked are in the range of second to fourth grade level.

You need not be offended at a reading level of third or fourth grade. On the contrary, it is praise. It means you have produced a document using short words and short sentences, and that's good. There's more though; *Right Writer* also assigns strength and descriptive indexes. It will tell you if your writing uses jargon, it will comment on the use of adverbs and adjectives and it is quick to point out the use of passive voice.

What we need now is an example. Let's see what *Right Writer* has to say about a typical memo:

To All Staff Members:

It has come to my attention recently that a number of this firm's employees are expecting a holiday at Christmas. May I call your attention to the fact that Christmas is just another <<* 8. Consider Omitting call your attention to the fact that *>> day. Life goes on on Christmas, and time is money. ^<<* 25. Repeated Word *>>

It has further been mentioned to me that a large number of <<* 1. Replace: a large number of by many *>^ employees have indicated that they will call in sick if the day is not declared a holiday. Any who do so, will certainly not be ^<<* 17. Long Sentence: 29 Words *>> paid and may, in fact, find themselves in the bread lines in the month of January.

^<<* 13. Redundant: the month of *>>

^<<* 17. Long Sentence: 24 Words *>>

^<<* 31. Complex Sentence *>>

God bless you,
E. Scrooge

Summary

Readability Index: 7.41

*R1 — Readers need a seventh grade level of education to understand the writing.

Strength Index: 0.37

*S2 — The writing style is weak.

Descriptive Index: 0.74

*D2 — The use of adjectives and adverbs is within the normal range.

Jargon Index: 0.00

Most sentences begin with pronouns. Try using other sentence start conditions.

Note that the strength index is low. This is due to all the excess wordage in the memo. Adjectives and adverbs are inside normal range. The jargon index is good. It shouldn't be hard to fix the memo. Let's give it a try.

To All Staff Members:

I understand that most employees think we will close for Christmas. We will not close.

There has been talk of feigned illness on Christmas. If you are not here, you will not be paid. In fact, you may be dismissed.

God bless you,
E. Scrooge

Summary

Readability Index: 1.74

*R1 — Readers need a second grade level of education to understand the writing.

Strength Index: 0.91

*S1 — The writing has a strong style.

Descriptive Index: 0.86

*D2 —The use of adjectives and adverbs is within the normal range.

Jargon Index: 0.00

There you are. We have turned a weak memo into a strong one. We have made some very drastic changes of course, but the intent of the memo is intact. Mr. Scrooge doesn't need to hide behind phrases. He's just used to writing that way. He thinks it's the way to write. *Right Writer* has aided in improving his memo.

As pointed out in the documentation, *Right Writer* doesn't change anything. If you want to follow its suggestions, do so. You may also choose to ignore the suggestions. *Right Writer* places the document being analyzed in a separate file. Your original file remains intact.

The documentation is among the best I have seen. It is well written — helped by *Right Writer* no doubt — and is printed well on both sides of the page. I mention that because of the single-sided photocopies shipped by many software publishers.

I recommend *Right Writer* to students, businessmen and technical people interested in turning out the clearest, most concise documents possible. It can be used by writers of fiction as well. It seems to me that fiction is more difficult to fit into the rules, though. Dialogue does not usually fit, not if it is common speech, and people don't speak in standard English.

One word of caution: Don't let it change your writing style — especially if you have been successful with it.

Remember: Use the suggestions when you can and ignore them when you must. A novel written to please *Right Writer* would most likely make boring reading.

(Decisionware, 4030 Gulf of Mexico Drive, Longboat Key, FL 33548, 813-383-9557, $75)

— Jim Pile

Software review

Time Bandit — Action, Strategy And Graphics

This is an addictive frustrating and enjoyable program. I bought my Sanyo for work, and quite frankly, I feel guilty for spending so much time on a game. (Aren't computers supposed to *save* time?) If I didn't have this review to write, I would have no excuse at all.

Time Bandit can be played by one person with the keyboard using the cursor control arrows, or a joystick; the two-person version requires at least one joystick. It is a machine language program (not loaded from BASIC). Your man starts on the main map, and your first job is to find a key and then to find a lock. This allows the player to enter a section of the map that has a large number of time gates.

Entering one of these gates puts the man in a new map and here the difficulty begins. To get back, you must find a series of keys and locks (sometimes you have to look for them — at your peril). Once you get back to the main map, the process starts over. Points are scored for picking up keys, locks and assorted treasures scattered across the maps.

There are bad guys all around. They come in various shapes such as smurfs, your own man, large eyes, etc. When one of them hits your man, you lose one "life." When you run out of lives, the game is over. You can also shoot the bad guys. Pressing the space bar fires a bullet in the direction you last moved (sometimes the bullet ricochets). If you hit a bad guy, a delightful sizzle occurs and a few points are scored. You also get an extra life for every 100 points you score.

I used a joystick to try the two-person version. Each player has his own window, which reduces the size of the viewing area but not the playing areas. Since both players are always on the same map, their men can interact. It is not hard for one player to find the other's man and either shoot him or help him by shooting nearby bad guys. The only problem is that on a monochrome monitor, the two men look too much alike (on a color monitor, they are clearly different).

At first, I thought this game was purely in the hand-eye category. That's probably because I was spending most of the time fending off the monsters. When I got a little better at it, however, I discovered that a lot of thoughtful strategy is required to do well. First, some of the maps are easier to navigate (and less dangerous) than others, and most require a careful strategy to escape. You also have to assess the risks involved in going after a piece of treasure.

The graphics are not particularly flashy or thrilling, but they have what I delight in most — detail. Although, on my monitor, the player's man is about one centimeter tall, he has a nicely proportioned body. When he moves in any direction, he simulates a human walk. If you don't move for a second or two, he gets impatient — he crosses or waves his arms and taps his foot.

There is also a considerable amount of detail in the design of the various maps. Sometimes when the man gets to the edge of the screen, the map scrolls (most of the maps are quite large), and sometimes the man appears on the other side of the screen. Some of the maps contain barriers that don't appear until you try to walk through them.

I have a few complaints, but they are all minor. The first is that a joystick is required for the two-person version and two joysticks are recommended. The Sanyo is primarily a work-oriented machine. This, of course, doesn't mean that games are inappropriate, but I don't believe that many Sanyo-owners invest in game-oriented hardware. This was confirmed by the three Sanyo dealers in town — perhaps MichTron's experience is different.

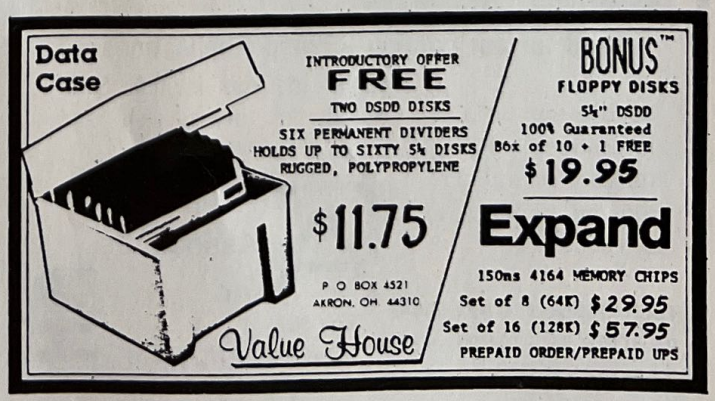
I recommend that in future versions, a different section of the keyboard be available for a second player. Second, there is no way to exit the program — you have to reboot. Sometimes, in the course of a work session with my computer, I will take a break to play a game. I don't like it to be inconvenient to get back to work. (Since the game is so good, it is hard enough as it is.)

Finally, according to the manual, the keys one, three, seven and nine on the numeric keypad are for diagonal movement, but all that happens with them is alternate horizontal and vertical movement. When I called MichTron to ask about these items, they pointed out that all three are due in part to the fact that the program is made to fit in 128K and takes all of that. There is not enough room to leave the operating system resident. Also, it would be rather complicated to get a two-person version solely on the keyboard, since in normal operation, if two keys are pressed simultaneously, neither will register.

The disk, incidentally, is copy-protected. This is not a complaint. I quite understand the need for MichTron to protect their investment, and they will replace a damaged disk. It would be convenient, however, if MichTron would allow room on the disk for the operating system to be transferred to it.

(MichTron, 576 South Telegraph, Pontiac, MI 48053, 313-334-5700, $39.95)

— Stewart Shapiro



Query!² — No Question About Filing

Assessing the worth of a database management system is a little like picking out a suit for someone you've never met.

You might, for example, recommend the business-like, grey number only to find that your end-user, as it were, is six inches taller than you expected and has a penchant for colorful, abstract ties. This guy wouldn't think much of your recommendation. So, too, with *Query!²*.

It is an easy-to-use, relatively versatile and inexpensive package which does just what it ought to with any base of data you want to create. Its limitations, in terms of volume, make it an unlikely choice for your basic corporation, but if you're looking to set up a mailing list, or catalog your library or keep track of a small list of customers, *Query!²* could be just what you're looking for.

The program has very little faith in a user's instincts and once loaded, keeps *warning* you and telling you *not* to do something unless . . . The first of these is a strong suggestion that you read the accompanying manual before you begin.

Query!² consists of eight programs which, as their names might suggest, allow you to *Create, Add, View, Recover, Purge, Sort, Print* and *Search* through a typical set of data.

The manual suggests that we, by way of example, "keep track of our book collection." It proceeds to self-prompt us through a series of instructions to create a format for this base. As with any database management system, that format should be thought out beforehand, for as the manual suggests, "few people ever set up a database or database structure and do not wish, at a later date, that they had designed it differently." This is an extremely helpful tip, since ignorance of this fact could lead to installing a structure that would have to be reentered in its entirety if you chose to change your mind.

While *Query!²* allows you to create up to 255 fields with 255 characters in each field, it sets a limit of 4,095 characters per record. The 4,095 character limit per record might necessitate dividing up a mailing list between such arbitrary classes as Family, Business, or Christmas list. Figure approximately 70 characters per listing, which pretty much limits it to the aforementioned basic fields, and you can presume you'll get 50 or so addresses out of it. This would bring me to the letter 'M' in my address book.

There is a rather disturbing piece of information in the *Create* instructions. It says "Once you have run *Create* you will not need it again . . . you may want to erase *Create* from your disk after you have used it, so as to free up as much room as possible for your database."

I picture the "anxious-to-get-rolling" beginner reading this, merrily complying, and then, two weeks later, discovering he can't insert his mailing list into a base that reads "Author, Title, Date of Publication and Subject Matter."

Be wary of this instruction. It's possible that I'm misunderstanding what it means, but if that's true, you might do the same thing. In any case, at least for now, my *Create* program is resting comfortably with its *Add, View, Recover, Purge, Sort, Printer* and *Search* buddies.

I, personally, have not reached the program's limitations. I suspect that were I to attempt a complete classification of my 10-year collection of *Rolling Stone,* MicroPro's *InfoStar* program might accommodate it a bit better.

It would also require a great deal more thought and effort to create the *InfoStar* structure, whereas within 45 minutes to an hour of booting up *Query!²*, I could be through June and July, 1975.

Partial credit to *Query!²'s* documentation for that. It is clear, orderly, concise and always willing to help.

The 25-page pamphlet does not tell you whether it will suit your needs. Only *you* can determine that.

If you're unsure (and you won't be lonely), check with your doctor . . . uhhh, your computer representative and ask.

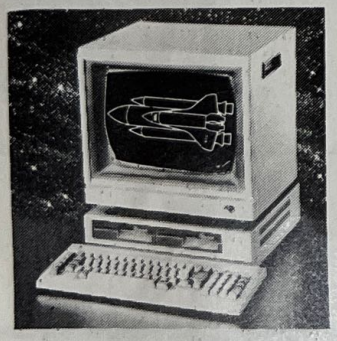
(Hoyle & Hoyle Software, 716 S. Elam Ave., Greensboro, NC 27403, 919-378-1050, $29.95)

— Skip Maloney

1-800-437-4757 EXT. 241

INTRODUCING SANYCAD

Computer Associates puts CAD in reach. With SANYCAD and a standard MBC-550 with 192K RAM, you can generate schematics, mechanical drawings, architect layouts, and business presentations with superb accuracy.



INTRODUCTORY PRICE
$99.95

PRINTER UTILITY
$39.95

Send for our catalog—Sanyo Applications

Send large SASE for current list of IBM software that runs on the Sanyo 550 series.

Dealer inquiries invited. Send $5.00 for demo disk and tutorial.

Computer Associates, Inc.

Box 683
West Fargo, ND 58078

Tech. Support 701-281-0549
24 HOUR BBS 701-281-0233

MasterCard VISA

Protect Your Valuable Magazine Collection With . . .

DISTINCTIVE AND DURABLE SOFT SECTOR BINDERS

Every single issue of SOFT SECTOR is a vital resource that you will refer to again and again for new insights, to explore new areas of interest or simply to refresh your memory. So, you need to keep your copies of SOFT SECTOR safe in high-quality, vinyl binders that provide complete protection.

These handsome royal blue and gold embossed binders, which hold a full 12 issues of SOFT SECTOR, are only $7.50 (please add $2.50 for shipping and handling each binder). **SAVE!** Buy four or more back issues of SOFT SECTOR with this order and save $1 per issue. Use the Back Issue Order Form on Page 83.

Mail to: Soft Sector Binders
The Falsoft Building
Prospect, KY 40059

☐ YES. Please send me _____ binder(s) at $7.50 each (plus $2.50 for shipping and handling each binder). If your order is to be sent via U.S. Mail to a post office box or to another country, please add $2. Kentucky residents add 5% sales tax.

Name _____

Address _____

City _____ State _____ ZIP _____

☐ My check in the amount of _____ is enclosed. (In order to hold down costs, we do not bill.)

Charge to: ☐ VISA ☐ MasterCard ☐ American Express

Account Number _____ Exp. Date _____

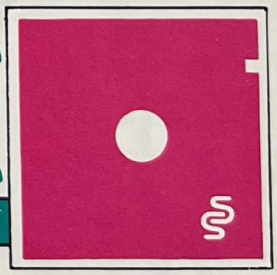
Signature _____

From the best resource for your Sanyo computer comes the best software deal on the market!

Each and every month of the year, SOFT SECTOR offers an assortment of programs for the home and office — utilities, business applications, games and more — all for the price of typing in the listings. But for the person on the move, that's a high price to pay.

Now, at long last, we introduce

SOFT SECTOR ON DISK



Ask yourself how much your labor is worth. Five dollars an hour? Ten? Even 20? Now ask yourself how many hours it takes to type in and debug just one of those wonderful (but long) programs from SOFT SECTOR. Think of it: Every program from the pages of SOFT SECTOR, ready to load and run with only a few keystrokes!

BACK ISSUES AVAILABLE

Several of the first issues of SOFT SECTOR are now out of stock, but the programs from those issues are available as back orders of SOFT SECTOR ON DISK, along with the accompanying text files of the articles ready to be routed to your screen or printer with a simple TYPE command. This may be your only chance to get the programs that you've missed.

Volume I contains programs from August, September and October 1984. Volume II contains programs from November and December 1984 and January 1985. All other copies of SOFT SECTOR ON DISK include programs from individual issues of SOFT SECTOR.

Now is your chance to make your Sanyo a full-time computer instead of a typewriter. Subscribe to SOFT SECTOR ON DISK today and give those weary fingers a break!

SOFT SECTOR ON DISK subscription rate is: within the U.S., $99; Canadian rate, U.S. $115; all other countries, U.S. $130. SOFT SECTOR ON DISK single volume rate is: within the U.S., $12; Canadian rate, U.S. $14; all other countries, U.S. $16. Subscription orders begin with the current issue, allowing 5-6 weeks for first delivery.

If you strike out every time you try to use a complex database manager, this program offers some simple training before you move up to the major leagues.

FIRSTBASE

Manager

Wrestling with a database program is often more trouble than it's worth for the beginning user. The varying degrees of installation, form generation, data entry and actual inquiries send one reeling to the supply store for a big box of notecards and a pencil. Whether you are cataloging a stamp collection or filing last month's bills, getting a database to run well the first time is a true test of patience.

Some databases, like *DataStar*, use a form-generating section which sets up information areas and the attributes of those areas. Others use a standard form which can be changed using a report generator. Still others incorporate all kinds of mathematical ability and quasi-spreadsheet power. *dBASE*, the king of the database managers for the moment, is so powerful some consider it a language. Whatever the complexity and intensity, getting to first base in this game takes some nerve, patience and a ready hand on the reset button for quick vengeance.

Last week, you rejoiced at mastering MS-DOS commands and getting *WordStar* finally installed on your printer. Set aside an hour or two now, and find further enlightenment with this easy database program you can use immediately and enlarge with a little more BASIC. Database managers can cost several hundred dollars. If it takes you an hour to type it in, an hour to correct your errors, and half an hour to set up some sample files, you are saving a bundle and can now consider yourself a highly-paid programmer!

(George Smart has been programming for the past nine years and is currently the vice-president of TDS Computers in Carrboro, N.C. He may be contacted at P.O. Box 2821, Chapel Hill, NC 27515-2821.)

In The Dugout

FirstBase allows you to set up files containing information related to a particular subject. For example, let's say you want to keep track of computer stores in your town. Information on each store is kept together and called a record. Each piece of data (such as the name of the store, address, etc.) is called a field or category. Thus, if we keep track of the name, address, and phone number for 40 computer stores, we have a file of 40 records, each containing three fields, for a total of 120 pieces of data.

Once our data is placed into the file, we get to the stuff databases are known for:

Adding a record
Finding a record (based on the contents of a specific field)
Indexing all entries for a specific field
Listing some or all the records in the file
Deleting a record
Changing a field within a record
Saving the file to the disk

FirstBase also keeps track of available memory, the filename (if any) you are using, and the number of records in the file.

A Database For Beginners

By George M. Smart

At Bat

When *First Base* initializes, it prompts you for the date and the file you want to access. If you want to get an existing file, type in the name of the file and hit RETURN and your file will be read from the disk. If you want to set up a new file, just press RETURN. You will then be prompted for the number of fields (categories) you want per record. This can be from one to 10. Next, you have to decide if you want the default field names (see the program for a listing) or not. If not, you must enter the name of each field.

A Hit Over Third

You will now see the main menu. From here you can work with your file in a variety of ways. Let's review how to use each one:

QUIT — End of story, game over, you're out.

ADD — *First Base* will prompt for an entry in each field. When you have completed a record, it will prompt for the first field in the next record. If you wish to exit at this point and not enter any further records, just press RETURN. This returns you to the main menu. *First Base* automatically sorts your records by the entry in the first field and keeps your file in order for the duration of the ADD process.

FIND — *First Base* will prompt you for the field you want to search and the item you want to search for. To see a listing of the field names, enter a '0' and RETURN. To exit from this point, type a "-1" and return. If the item appears more than once, all records corresponding to your search will be shown. If nothing is found, you will be told you have reached the end of the file. Further, *First Base* searches for any field starting with the item you are looking for; a query of "chai" will produce all three records in a file consisting of "chairman," "chairperson," and "chaise lounge."

INDEX — Asks you for the field you want to index. A listing of all the information contained on that field will then be shown.

LIST — Lists records with all fields shown. You are asked for a response to the prompt "Start, End, Pause." Enter the number of the record to start the list at, then the number of the record you want to end at, then a '1' if you want a pause between each record or a '0' if not. If you don't know the number of the record to end at, look at the top right corner of the screen for the length of your file. If that does not help, enter a '0' for the ending number, and *First Base* will search from the specified beginning point to the end of the file.

DELETE — *First Base* asks you for a record number to delete. If you are not sure, do a listing of the records first to ascertain the number of the record to be deleted.

CHANGE — Prompts you for a record number and a field number. *First Base* will then ask for the new entry and make the change for you.

SAVE FILE — Saves your file to a disk based on the name you supply.

In general, when you see the prompt [R], *FirstBase* is waiting for you to push the RETURN key. This allows you time to take in information before moving on to other work.

Modifying The Playing Field

By playing around with this program, you can greatly increase its power. I suggest putting in choices which allow you to send information to the printer rather than to the screen, or sorting by other fields than the first, or expanding the maximum number of records to fit expanded memory. If you have any questions, drop me a line at the address below. I would be interested to see your enhanced versions of *FirstBase*.

The Players

Here is a list of the variables used. This will be very helpful to you in debugging and in further enhancing the program.

Variable	Type	Function
C	Numeric	Specified field
CHECK$	Character	Checks record
CHK1$	Character	Checks low record
CHK2$	Character	Checks high record
D	Numeric	Middle record
D$	Character	Date
F$	Character	Filename
H	Numeric	High record
I,J,W	Numeric	Loop counters
INK	Numeric	Menu command
L	Numeric	Low record
L1	Numeric	Starting record in list
L2	Numeric	Ending record in list
L3	Numeric	Pause flag for list
L$	Character array	Main storage
NF	Numeric	Maximum number of fields
NR	Numeric	Maximum number of records
P	Numeric	Length of file
R$	Character array	Names of fields
SC	Numeric	Scouting value for FIND
T$	Character	Titles of sections
X$	Character	Y/N response
X$	Character array	Temporary record storage

Locker Room Wrap Up

Be aware that this is not a very powerful program. Although you will be able to accomplish many of the features found on other database managers, *FirstBase* is not something you want to commit your business records to. Files over about 60 records will slow the program down, so don't plan to put great amounts of data in a file. *FirstBase* was designed for the first-time user who knows a little bit of BASIC and wants to understand how databases work. From here you can expand the features as much as you like.

For a copy of *FirstBase* on disk, send $5 for each disk plus $2.50 shipping to Weaver St. Software, P.O. Box 608, Carrboro, NC 27510-1735 (also available, of course, on the June edition of SOFT SECTOR ON DISK).

The listing: FIRSTBAS.BAS

```
1Ø REM   ************************************************
2Ø REM   *                                              *
3Ø REM   *    FIRSTBASE: an easy database               *
4Ø REM   *                                              *
5Ø REM   *    by George M. Smart, Jr.                   *
6Ø REM   *       PO Box 2821                            *
7Ø REM   *       Chapel Hill, NC 27515-2821             *
8Ø REM   *       919-929-4593                           *
9Ø REM   *                                              *
1ØØ REM  *    Permission granted for personal use only  *
12Ø REM  *    Records are sorted by first field         *
13Ø REM  *                                              *
14Ø REM  ************************************************
15Ø NR=1ØØ:NF=1Ø:DIM L$(NR*NF),X$(NF),R$(NF)
16Ø ON ERROR GOTO 37Ø
17Ø REM ***** READ FILE OR SETUP NEW FILE *****
18Ø T$="***** System Setup *****":GOSUB 192Ø
19Ø F$="":PRINT "Current date is: "DATE$
2ØØ INPUT "Enter new date :";D$: IF D$="" THEN D$=DATE$
21Ø PRINT:INPUT "Enter filename or RETURN : ";F$
22Ø IF F$="" THEN 29Ø
23Ø OPEN "I",#1,F$:INPUT#1,P,NF
24Ø PRINT "Reading file, please wait . . ."
25Ø FOR I=1 TO NF:INPUT#1,R$(I):NEXT I
26Ø FOR I=1 TO P*NF:INPUT#1,L$(I):NEXT I:GOTO 37Ø
29Ø PRINT:P=Ø:INPUT "How many fields? ";NF:IF NF<1 OR NF>1Ø THEN 29Ø
3ØØ INPUT "Use default field names (y/n): ";X$
31Ø IF X$="n" OR X$="N" THEN 33Ø
```

An INTELLIgent COMmunications Program

YOU CAN SPEND MORE ! ! ! WHY WOULD YOU ? ? ?

QUALITY SOFTWARE

Your PC can be more than a simple terminal, it can be **a powerful communications system** - with the proper software. **Don't be misled! Compare features of the various communications products BEFORE YOU BUY.** Buying overpriced software is no wise business decision. Don't you really want the best product - even if it costs less? The Computer Toolbox is pleased to offer you INTELLICOM - **Compare features and then decide!**

EASE OF USE

For those with limited telecommunications experience our documentation includes a **Beginner's Primer.** This primer clearly and simply explains basic terms and can serve as the total manual needed for using INTELLICOM. **We even include a complete sample logon session for Compuserve that demonstrates how to use that service.** For the advanced communicator there is complete documentation on all emulations and protocols used. Actually, **Help Screens** are available anywhere within the program by pressing a single key and the manual is almost unnecessary. COMPARE!

REAL TERMINAL EMULATION

INTELLICOM offers you real terminal emulation. Not just dumb TTY. Select from a menu of terminals that include **Digital VT100 and VT52, ADDS Viewpoint and 25, ADM3 and ADM5, Televideo 910 and 925,** and of course a simple TTY. By the way, **our VT100 emulation is extensive and has been tested on the VAX editor EDT** and several other mainframe editors - and it works fine. A real **"break key"** is implemented on all emulations. We even allow you to look like the **Compuserve Executive Terminal.** Your PC can look like any of the above with INTELLICOM and operate with your business or university computer.

Which terminal(s) does our competition emulate?

FILE TRANSFER CAPABILITIES

Of coure INTELLICOM offers the ability to **send and receive files** - all kinds of files. You may send and receive simple ASCII files with XON/XOFF support (the most common for text) but you may also use the most popular **error checking protocol,** Xmodem. We support **both checksum and CRC methods in Xmodem.** This method of file transfer will allow you to transmit any type of eight bit data including an EXE file. You may purchase the source code for host support on several mainframe computers of this most popular error checking protocol for only $10.00. We also support the **Compuserve A** protocol for error checking for use on that system. For those who may require it, we also include Hex file transfer capabilities and PTR/PTP support.

Why be tied to some proprietary, uncommon protocol?

MSDOS WINDOW

INTELLICOM offers you our **Window Feature** - a truly powerful function of the program. While logged onto your favorite data base service or work computer you can select this feature and instantly have access to MSDOS where **you can run another program while INTELLICOM waits patiently in the background.** One of the most practical applications would be to run your word processor to create a document and then, by a single keystroke, return to INTELLICOM and send it - all without ever having to log off your system.

What does the competition offer?

SPEED

INTELLICOM will operate at speeds up to **4800 baud on the Sanyo 550/555, 9600 on IBM PCs or look-a-likes and 19200 on the DEC Rainbow.** Just because you are using a 300 or 1200 baud modem now, **INTELLICOM will not become outdated** as inexpensive 2400 baud modems become available. You can do direct wire transfers between computers at really fast rates and not be tied to your modem's limitations. Compare Speed!

USEFUL FEATURES

INTELLICOM even allows you to **define ten keys to be any string of character (up to 80 char long each).** Your ID number, password or any often sent string can easily be defined for each application you have. Of course you can **toggle your printer on and off with a single keystroke.** Yes, the **Hayes modem is supported as is the Anchor Mark XII.** Yes, **telephone directories** are supported (23 entries/directory and no limit to the number of directories on disk) and the program will continue to redial until the connection is made or you tell it to stop (persistance feature). Yes, INTELLICOM will work with any modem - if it is not an Anchor or Hayes all you will lose is the ability to have the computer dial the phone. **INTELLICOM will even recognize Michtron's DSDOS** (2.11 version) or standard MSDOS 2.11 and work properly with each. Of course the program is **menu driven** but we also allow you to use single keystrokes for the most popular features - no need to memorize cryptic commands. **Reasonable update policy** - previous purchasers may update to the most current version by returning their original disk and a check for $15.00 Compare again!

SUPPORT

The Computer Toolbox is dedicated to dealer and end user support. **Our TOLL FREE number is available not only for orders but also for technical assistance.** If you have a question or problem call us. We pride ourselves on our after-sale support and would be happy to provide you with copies of complete testimonial letters. We are second to none in standing behind our products!

INTELLICOM is available for the Sanyo 550/55 and 775, IBM PC and JR, DEC Rainbow and VT180, and IBM PC compatibles. System requirements are 128K RAM, one disk drive and MSDOS 2.0 or higher.

IN THE FINAL ANALYSIS IT REALLY DOES COST LESS TO GO WITH THE BEST! ! !

INTELLICOM is priced at only $69.95

Order INTELLICOM from your local Sanyo dealer or direct from:

THE COMPUTER TOOLBOX

1325 East Main Street — Waterbury, Conn. 06705

Toll Free Number 1-800-321-DATA

In Connecticut Telephone (203) 597-0273

MasterCard, Visa and COD orders are welcome. Specify DOS Version and Computer when ordering.
Connecticut residents add 7½% sales tax — and $5.00 for shipping.

```
32Ø GOSUB 195Ø:GOTO 37Ø
33Ø FOR I=1 TO NF
34Ø PRINT "Name of field"I" :";:INPUT R$(I)
35Ø IF R$(I)="" THEN 34Ø
36Ø NEXT I
37Ø REM ***** MAIN MENU *****
38Ø T$="***** MAIN MENU *****":GOSUB 192Ø
39Ø IF ERR=Ø THEN 43Ø
4ØØ IF ERR<>53  THEN 43Ø
41Ø PRINT:PRINT "File not found.  Be sure of your filename":PRINT
415 GOSUB 214Ø
42Ø GOTO 18Ø
43Ø PRINT "1] Quit"
44Ø PRINT "2] Add"
45Ø PRINT "3] Find"
46Ø PRINT "4] Index"
47Ø PRINT "5] List"
48Ø PRINT "6] Delete"
49Ø PRINT "7] Change"
5ØØ PRINT "8] Save File":PRINT
51Ø PRINT"Command . . .";
52Ø INK=VAL(INKEY$)
53Ø ON INK GOTO 55Ø,59Ø,1Ø2Ø,154Ø,166Ø,127Ø,136Ø,18ØØ
54Ø GOTO 52Ø
55Ø REM ***** QUIT *****
56Ø PRINT:PRINT"Quit? (Y/N): ";
57Ø X$=INKEY$:IF X$="" THEN 57Ø
58Ø IF X$="Y" OR X$="y" THEN END:ELSE 37Ø
59Ø REM ***** ADD *****
6ØØ T$="***** ADD *****":GOSUB 192Ø
61Ø PRINT R$(1)":";:INPUT X$(1)
62Ø IF X$(1)="" THEN 37Ø
63Ø FOR I=2 TO NF
64Ø PRINT R$(I)":";:INPUT X$(I)
65Ø IF X$(I)="d" THEN X$(I)=L$(I)
66Ø NEXT I
67Ø REM * INSERT INTO ORDERED LIST *
68Ø L=1:P=P+1:H=P-1:IF P=1 THEN 94Ø
69Ø CHK1$=L$(((L-1)*NF)+1)
7ØØ CHK2$=L$(((H-1)*NF)+1)
71Ø IF X$(1)<=CHK1$ THEN 9ØØ
72Ø IF X$(1)>=CHK2$ THEN 97Ø
73Ø IF H-L=1 THEN 79Ø
74Ø D=INT((H-L)/2)
75Ø CHECK$=L$(((L+D-1)*NF)+1)
76Ø IF X$(1)<=CHECK$ THEN 78Ø
77Ø L=L+D:GOTO 73Ø
78Ø H=H-D:GOTO 73Ø
79Ø REM -- insert between L & H
8ØØ PRINT "Inserting . .";
81Ø FOR J=P TO L+2 STEP -1
82Ø FOR I=J*NF TO (J-1)*NF+1 STEP -1
83Ø L$(I)=L$(I-NF)
84Ø NEXT I:NEXT J
85Ø FOR I=1 TO NF
86Ø L$(L*NF+I)=X$(I)
87Ø NEXT I
88Ø PRINT "at RECORD #"L+1
89Ø GOSUB 214Ø:GOTO 59Ø
```

```
900 REM -- insert in pos 1 (L-1)
910 FOR I=P*NF TO NF+1 STEP -1
920 L$(I)=L$(I-NF)
930 NEXT I
940 FOR I=1 TO NF
950 L$(I)=X$(I)
960 NEXT I:PRINT "Inserted at RECORD # 1":GOSUB 2140:GOTO 590
970 REM -- insert in pos H+1
980 PRINT "Inserted at RECORD #"H+1
990 FOR I=1 TO NF
1000 L$((P-1)*NF+I)=X$(I)
1010 NEXT I:GOSUB 2140:GOTO 590
1020 REM ***** FIND *****
1030 T$="***** FIND *****":GOSUB 1920
1040 INPUT "Which field? (0=list,-1=exit):";C
1050 IF C=-1 THEN 370
1060 IF C<0 OR C>NF THEN 1040:ELSE IF C=0 THEN 1070:ELSE 1080
1070 GOSUB 2100:GOTO 1040
1080 INPUT "        Item :";ITEM$
1090 PRINT
1100 REM ** sequential search
1110 LN=LEN(ITEM$):SC=0:GOTO 1150
1140 SC=SC+NF:IF SC>=(P*NF) THEN 1250
1150 CHECK$=MID$(L$(SC+C),1,LN)
1160 IF ITEM$=CHECK$ THEN 1170:ELSE 1140
1170 PRINT "    Record # ";(SC+NF)/NF
1180 PRINT
1190 FOR J=SC+1 TO SC+NF
1200 PRINT R$(J-SC) TAB(16);L$(J)
1210 NEXT J
1220 PRINT:GOSUB 2140
1230 GOTO 1140
1240 PRINT
1250 PRINT "[] End of file []"
1260 GOSUB 2140:GOTO 370
1270 REM ***** DELETE *****
1280 T$="***** DELETE *****":GOSUB 1920
1290 INPUT "Record #: ";X
1300 IF X=0 THEN 370
1310 IF X>P THEN 1290
1320 FOR I=((X-1)*NF)+1 TO (P-1)*NF
1330 L$(I)=L$(I+NF)
```


EXPAND to 512K+ or a BUILT-IN MODEM

- **RAM Board** — Expands the 550/555 to 512K+
  Plugs in with **NO** modifications necessary.
  100% Compatible, Switchable from 256K to 512K
  Fully Assembled $299
- **BUILT-IN MODEM** — 300/1200 Auto Answer/Auto Dial ..... $ CALL
- DS-DOS 1.25* ..... $ 25
- DS-DOS 2.11* ..... $ 39
- RAM Disk* ..... $ 27
- Printer Spooler* ..... $ 27

*When Ordered with RAM Board

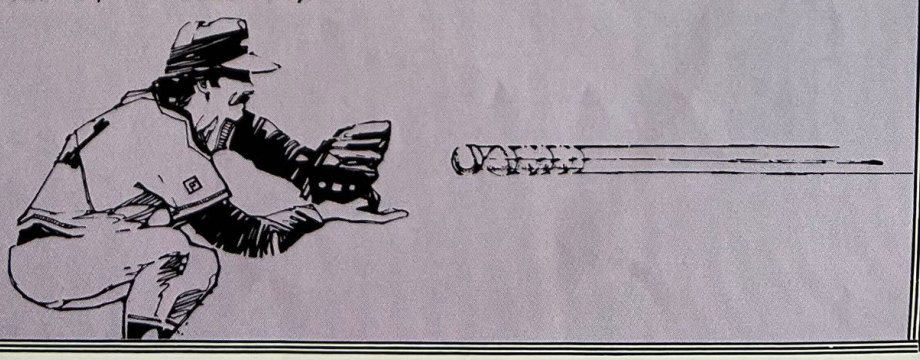
- 128K RAM 150 ns or less $25
- WordStar Command Template ..... $ 9
- SpellStar/Mailmerge Command Template ..... $ 9

Call For Other Hardware/Software Products.
DEALER INQUIRIES WELCOME

BMC ENTERPRIZES
P. O. Box 1047 • Poway, CA 92064
(619) 566-9555

Add 3% for VISA or Mastercard
All orders plus shipping & handling
CA Residents add 6% Sales Tax.

```
134Ø NEXT I
135Ø P=P-1:GOTO 37Ø
136Ø REM ***** CHANGE
137Ø T$="***** CHANGE *****":GOSUB 192Ø
138Ø INPUT "Record #: ";X
139Ø IF X=Ø THEN 37Ø
14ØØ IF X>P THEN 138Ø
141Ø PRINT
142Ø FOR I=((X-1)*NF)+1 TO X*NF
143Ø PRINT L$(I)
144Ø NEXT I:PRINT
145Ø INPUT "Which Field? (Ø=list,-1=exit):";C
146Ø IF C=-1 THEN 37Ø
147Ø IF C<Ø OR C>NF THEN 145Ø:ELSE IF C=Ø THEN 148Ø:ELSE 15ØØ
148Ø GOSUB 21ØØ
149Ø GOTO 145Ø
15ØØ INPUT "          New Line: ";X$
151Ø IF X$="" THEN 15ØØ
152Ø L$(((X-1)*NF)+C)=X$
153Ø GOTO 37Ø
154Ø REM ***** INDEX *****
155Ø T$="***** INDEX *****":GOSUB 192Ø
156Ø INPUT "Which Field? (Ø=list,-1=exit):";C
157Ø IF C=-1 THEN 37Ø
158Ø IF C<Ø OR C>NF THEN 156Ø:ELSE IF C=Ø THEN 159Ø:ELSE 16ØØ
159Ø GOSUB 21ØØ:GOTO 156Ø
16ØØ PRINT:FOR I=1 TO P
161Ø PRINT L$(((I-1)*NF)+C)
162Ø IF INT(I/18)=I/18 THEN GOSUB 214Ø
163Ø NEXT I
164Ø GOSUB 214Ø
165Ø GOTO 37Ø
166Ø REM ***** LIST *****
167Ø T$="***** LIST *****":GOSUB 192Ø
168Ø INPUT "Start, End, Pause";L1,L2,L3
169Ø IF L1<1 OR L2>P THEN 168Ø
17ØØ IF L2=Ø THEN L2=P
171Ø FOR I=L1 TO L2
172Ø PRINT:PRINT"   Record #  "I:PRINT
173Ø FOR J=1 TO NF
174Ø PRINT R$(J) TAB(15);L$(((I-1)*NF)+J)
175Ø NEXT J
176Ø IF L3=1 THEN GOSUB 214Ø:ELSE PRINT
177Ø IF I=L2 AND L3=Ø THEN GOSUB 214Ø
178Ø NEXT I
179Ø GOTO 37Ø
18ØØ REM ***** SAVE *****
181Ø T$="*** SAVE FILE ***":GOSUB 192Ø
182Ø PRINT:INPUT "Filename? :";F$:IF F$="" THEN 37Ø
183Ø OPEN "O",#1,F$
184Ø WRITE#1,P,NF
185Ø FOR I=1 TO NF
186Ø WRITE#1,R$(I)
187Ø NEXT I
188Ø FOR I=1 TO P*NF
189Ø WRITE#1,L$(I)
19ØØ NEXT I
191Ø CLOSE#1:GOTO 37Ø
192Ø REM ** header
```



```
193Ø CLS:PRINT T$ TAB(28);FRE(Ø)"bytes free" TAB(5Ø);"File:"F$ TAB(66);"# Record
s:"P
194Ø GOSUB 218Ø:RETURN
195Ø REM ** default fieldnames
196Ø FOR I=1 TO NF
197Ø READ R$(I)
198Ø NEXT I
199Ø DATA "   Category"
2ØØØ DATA "       Name"
2Ø1Ø DATA "    Address"
2Ø2Ø DATA "    Address"
2Ø3Ø DATA "      Phone"
2Ø4Ø DATA "Reference 1"
2Ø5Ø DATA "Reference 2"
2Ø6Ø DATA "Reference 3"
2Ø7Ø DATA "Reference 4"
2Ø8Ø DATA "Date Entered"
2Ø9Ø RETURN
21ØØ REM -- list fields
211Ø PRINT:FOR I=1 TO NF
212Ø PRINT I TAB(4);R$(I)
213Ø NEXT I:PRINT:RETURN
214Ø REM -- wait, gosub
215Ø PRINT:PRINT"[R]"
216Ø IF INKEY$="" THEN 216Ø
217Ø PRINT:RETURN
218Ø REM -- line
219Ø FOR W=1 TO 8Ø:PRINT "-";:NEXT W:PRINT:RETURN
```


10 MEG EXTERNAL HARD DISK
$1,245

MISSOURI RESIDENTS ADD 5.625% SALES TAX. FOR SANYO 550/555 SERIES COMPUTER ONLY. SIX MONTH LIMITED WARRANTY.

SYSTEM COMPLETE WITH HOST ADAPTER AND PATCHES TO 2.11 DOS. READY TO RUN, 10 MINUTE INSTALLATION.

LEMCO — THE LEMBERGER CO.
100 N. MAIN ST., VIENNA, MISSOURI 65582
"Dealer Inquiries Welcome"
SERVING MICROCOMPUTER USERS SINCE 1978 PHONE (314) 422-3353

GET BETTER VIDEO PERFORMANCE

from your Sanyo 550/555 Series system's color or monochrome monitor. Use our proprietary PATGEN program and manual to set convergence, rotation, linearity, size, focus, and color or gray scale adjustments on your monitor to obtain optimum performance the easy way. For the best view, order PATGEN now! Customers in U.S.A. send your check in the amount of $18.15 per copy. Foreign customers send international bank check in the amount of U.S.$20.75 per copy. Prices include shipping. Make checks payable to MULTI-TRONIX.

TEAC disk drives for upgrading Sanyo 550/555 Series to DSDD or DSQD	$ CALL
DOS for Sanyo 550/555 Series DSDD and DSQD systems	$ CALL
SANYO IBM video board with GWBASIC for 550/555 Series (runs LOTUS)	$ CALL
SANYO BASIC, MS-DOS, service, and parts manuals for 550/555 Series	$ CALL
Memory chips for Sanyo 550/555 Series	$ CALL
SILVER REED, C.ITOH, and CITIZEN printers for Sanyo 550/555 Series	$ CALL

MULTI-TRONIX™
3210 Terry Drive • Toledo, OH 43613 • Telephone: 419/472-3360

SANYO **FOR LE$$**

FREE Diskette Storage Boxes
FREE Catalog

*Convert IBM BASICA to Sanyo BASIC Limited Time Only	$29.95
*Unprotect IBM/Sanyo BASIC	$24.95
*Supplement For Basic — 70 Pages	$5.00
*Key Plus Program	$14.95
Tool Box — Includes all the above 4 Products*	$53.95
Sanyo Video Board	$169.00
128K Memory Upgrade	CALL
COPYLINK™ — Limited Time Only	$74.95
CPeMULATOR™ — Limited Time Only	$74.95
Sanyo RS232	$69.95

CALL FOR MANY MORE SPECIALS

**If you see an identical item advertised in this issue of Soft Sector for less, CALL US and we'll MATCH OR BEAT the price!

★ Add $2.00 for postage and handling. ★
★ COD orders extra ★
★ Dealers inquiries invited ★
★ Check, Visa, Mastercard and Money Order ★

BLOCK MARKETING, INC.
6009 Wayzata Blvd., suite 102B
Minneapolis, MN 55416
(612) 546-3776
(Block Marketing is a recognized Sanyo Dealer.)
*MN residents must add 6% Sales Tax.

SOFT TALK

IT'S HERE! For those of you who are avid fans of "BASIC Training" and have long been awaiting the arrival of Fred Blechman's book, the wait is over. The *Sanyo MBC 550/555 Beginner & Intermediate Guide* is now available through Fred Blechman or through CBS Computer Books by Holt, Rinehart & Winston, ISBN #0-03-000187-0.

This guide is complete for beginners and experienced users and gives practical applications for business and home use. It features 13 programs and is illustrated with drawings and photos, listings and screen diagrams. The programs are explained line-by-line to help teach the most common BASIC commands and statements.

Also available is a programs/utilities disk which may be ordered with the book or separately. This is a non-system disk which is formatted on one side only, eight sectors per track (160K), and is readable by any standard DOS. The programs are not protected and may be LISTed and COPYed. You may transfer these programs to a system disk for your convenience.

The *Sanyo MBC 550/555 Beginner & Intermediate Guide* is currently available for $17.45. The diskette is available for $20 if ordered with the book and $25 if ordered separately. If ordered directly from Blechman Enterprises, the book will be autographed by the author. Both may be obtained through Blechman Enterprises, 7217 Bernadine Ave., Canoga Park, CA 91307; (818) 346-7024.

SEEKEASY is an information filing and retrieval program. It allows storage and retrieval of information without having to worry about specific formats, word-order, capitalization, incomplete item specification, different spelling and the like.

SeekEasy performs most efficiently with files it has created, but will search any file you wish such as *dBASE, WordStar, Perfect Filer,* etc. It will do its "flexible match" evaluation of the file and display what it found that best matches your request. This feature allows you to add *SeekEasy* to your existing database programs.

SeekEasy is currently available for $87 from Correlation Systems, 81 Rockinghorse Road, Rancho Palos Verdes, CA 90274; (213) 833-3462.

* * *

BUILD YOUR VOCABULARY with *Word Wiggle,* a game which requires you to use your brain to unscramble letters to form as many words as you can in the time allotted.

This scrambled letter game helps to build word skills for both children and adults. Players score points in the letter squares by following adjacent letters to form words. There are 11 skill levels which help you to develop your vocabulary and agility until you can challenge the full 40,000 word dictionary.

Word Wiggle is currently available for $29.95 from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, CA 91403; (213) 986-4885.

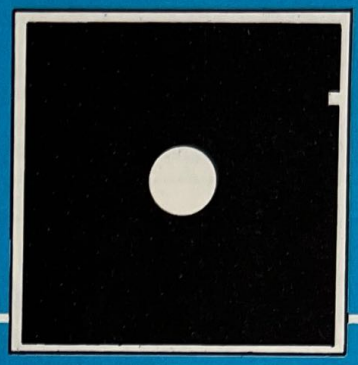
* * *

SPEED SCREEN is a driver program for users of MS-DOS 2.11 which will make the 2.11 display operate faster than MS-DOS 1.25. This is done by using only 16K (the green portion) of the Sanyo screen, which is 48K. It deletes the need for the other 32K and allows characters to be moved around on the screen a lot faster. Programs which use color are now displayed in green only. This will also stop the annoying habit that some programs have of leaving your screen printing in white when you exit them.

Speed Screen is currently available for $24.95 from Michigan Software, 43345 Grand River, Novi, MI 48050; (313) 348-4477.

* * *

CHECKMATE! MichTron, Inc. has recently announced the release of *Check Mate,* a computer chess game for the Sanyo 550 series. The program features user-selectable play difficulty from the novice level through the expert and allows the user to control the computer's response time. You are actually able to see the computer "thinking" as each



possible move is displayed during the computer's move selection process.

Check Mate is currently available for $39.95 from MichTron, Inc., 576 S. Telegraph, Pontiac, MI 48053; (313) 334-5700.

* * *

ASCII PRINTER is a RAM-resident program which can be implemented at any time with the CONTROL-SHIFT-PF6 keys without disturbing the program that is running. This program will transfer all ASCII characters on the screen to the printer. It allows the operator to control the area to be printed and includes a form feed feature to advance the printer paper by use of the CONTROL-SHIFT-PGUP keys.

ASCII Printer is currently available for $20 from J & M Software, 400 Sawyer Road, Lansing, MI 48910.

* * *

WORD PERFECT is an assembly language word processing program which is designed for professionals. This program is composed of a series of 12 lessons which take you step-by-step through most of its features.

Word Perfect (version 4.0) is simple to learn and operate and is well-supported and documented. It contains a variety of features such as auto-formatting, boldfacing, underlining and centering on screen, left/right justification, built-in mathematics, foreign language support, a phonetic dictionary and more. It requires 192K and two disk drives.

Word Perfect is currently available for $495 from SSI Software, 323 North State Street, Orem, UT 84057; (800) 321-4566.

* * *

DOOM-QUEST, an Adventure game from Migraph Software combines text and colorful high resolution graphics to create a believable and dangerous world. Take the *Doom-Quest* challenge and assist the Wizard MAgorth in the recovery of the soul-gems. Throughout your adventure, you will come face-to-face with menacing monsters, traverse mysterious mazes and be confronted with ancient puzzles.

Doom-Quest consists of 60 different locations and an extensive vocabulary which keeps the game fast-moving and exciting. The graphics may be turned off to speed the game and you may save and restore your game at any time.

Doom-Quest is currently available for $44.95 from Migraph Software, 33125 15th Avenue South (B-121), Federal Way, WA 98003; (206) 839-6811.

* * *

FLEXIBILITY is what you get with *DataFlex,* a new database program from DataAccess Corporation. This program is composed of a menu system, relational database, command language, a forms processing system, online multi-key ISAM, data processing procedures and an application generator.

DataFlex allows you to maintain up to nine indexes for each file plus one "ad hoc" index which you can create at run time. The program can locate records in a database randomly or sequentially, by a full or partial key, or through relationships with other database files.

DataFlex is currently available for $995 from DataAccess Corporation, 8525 S.W. 129 Terrace, Miami, FL 33156; (305) 238-0012.

* * *

MYCALC is a spreadsheet program which provides capabilities of a two-dimensional "what if?" calculator program, including formulas, labels, variable column width, logical operations, references across multiple spreadsheets, sort and print to line printer or disk file.

Display formats include scientific, financial and bar graph. The program also includes 23 online help screens to keep you going and it comes with a variety of templates.

MyCalc is currently available for $59.95 from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, CA 91403; (818) 986-4885.

* * *

Continued from page 70

UP AND RUNNIN'

Editor:

Please list my Sanyo 550 Bulletin Board System in SOFT SECTOR (your mag is great). I am looking for more Sanyo users and would even like to have a Sanyo club or Special Interest Group set up on it if the interest is there. I am not new to SysOping. For the past three years I have been running my BBS (Apollo) on a TRS-80 Model I, 24 hours a day at 300/1200 Baud. During that time the system *never* went down or offline. However, I outgrew the Model I and switched to a Sanyo 550, 256K RAM, with a TW Technologies 10-megabyte hard drive. The software is written in Borland's very fast Turbo PASCAL. My co-SysOp, who did the programming, is even thinking of starting a SIG for Turbo PASCAL users.

Here are the facts:

Apollo 7.0 BBS
Phoenix, Arizona
(602) 246-1432
24 hours a day, seven days a week
300/1200 Baud

The BBS is free and open to the public, but membership status passwords are available for more commands. Give it a call and say you saw it in SOFT SECTOR.

Cliff Kolostow
Chris Zagar
Phoenix, AZ

POKER FEVER

Editor:

The whole family got a big kick out of Rodney Viessman's *Five Card Draw* (March '85, Page 61). When all the kids were home during Easter recess, it was played every day, and a major shortcoming was soon apparent. Every time we booted the system, the same cards came up. Investigation showed that Rodney had tied the "shuffling" of the cards to the random selector (lines 760 to 790). A much better method is to tie the random selector for a continually new "seed" to the time clock. This is very simple. Just insert the following three lines ahead of Line 760:

```
T$=TIME$
TR2$=RIGHT$(T$,2)
RANDOMIZE VAL(TR2$)
```

This makes the seconds (zero to 59) of the clock feed a new seed to the random selector every second.

A couple of other minor changes also made the game more interesting. We eliminated Line 2850 completely. This does away with the somewhat visually annoying redrawing of the cards at the beginning and between games, and we changed the odds to be more realistic. Just change the M*# in the various "That's worth" lines and the following line, and put in whatever you want. You should, of course, also change the printing in the payoff chart accordingly (lines 600 to 700).

Great fun, Rodney. Thank you.

N.A. Kelly
Denham Island, British Columbia

REVIEWING REVIEWS

Editor:

Regarding the review of *The Disk Calculator* (May '85, Page 74), an additional study of the chaining example provided by the reviewer reveals that the correct answer could have been achieved directly through the key sequence given below. We still maintain that the "major bug" the reviewer found is not a bug at all.

Key Sequence	Result
2/ENTER 3/ENTER PF5	5
PF10/ENTER 3/ENTER PF9/ENTER	15
4/ENTER PF5	19
PF10/ENTER 6/ENTER	114

Jim LoVerme
RJL Systems
Milford, CT

PRICKLY-PEAR SOFTWARE
QUALITY SOFTWARE FOR THE SANYO 550 SERIES

★ ★ ★ **TWO NEW PROGRAMS** ★ ★ ★

PRICKLY-PEAR DATAPACK — Solve those tedious problems of organizing all your important data. This command-driven "standalone" package comes with an easy-to-learn set of instructions. Twenty commands are available for defining new databases, retrieving, sorting, reporting, single-or-multiple record updating, joining and projecting, etc. With the plethora of instruction guides and "help" screens available online, even a new user will have no trouble creating and using large databases; no programming knowledge is required.

Datapack will output reports to your printer, console or disk file. Let the program handle everything or define your own optional page headings, column order, breaks (with sums/counts/averages etc.) and summaries.

To see why the **PRICKLY-PEAR DATAPACK** is the best relational database program for your money, write for more information. DATAPACK requires 128K. It comes in a quality binder with 40 pages of documentation and 1 disk. **$150**

FORBIDDEN TEMPLE — If you love adventure, fantasy, magic spells and dungeons with monsters, this is the game for you. Before entering the **FORBIDDEN TEMPLE** you will roll up your character. Select the right combination of strength, intelligence, dexterity and constitution and bargain with the willy trader to buy your weapons and spells. Choose carefully or you may not survive the **FORBIDDEN TEMPLE.**

The full color graphics features a realistic three dimensional window screen display that takes you into the temple. But don't enter the **FORBIDDEN TEMPLE** alone! This game has a three player option and, of course, you can save the game in progress.

The high priest of Capapus is the evil Maleficus. As his power and riches grew, so did his fear of loosing his great wealth. Search for the gold of Maleficus hidden deep in the **FORBIDDEN TEMPLE.**

Like all Prickly-Pear Softwear, it is packaged in a quality vinyl library case. **FORBIDDEN TEMPLE** requires 256K and one disk drive — **$39.95**

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

PERSONAL FINANCIAL MANAGEMENT SYSTEM — It allows up to 99 income and expense accounts, maintains budgets, graphs, transaction journals, income and expense statements and balance sheets. **$49.95**

TRIVIA TRIVIA — Transforms your computer into the ultimate trivia game for **$34.95.** Additional question disks for CHILDREN, SPORTS, BIBLE AND ENTERTAINMENT available for **$19.95** each.

FOR ORDERS CALL
1-800-223-5369 EXT. 256

Dealer and author inquiries are always welcome. Canadian dealers should contact Kelly Software Distributors, Ltd., P.O. Box 11932, Edmonton, Alberta T5J-3L1 (403) 421-8003

Your Personal check is welcome - no delay. Include $1.50 shipping for each program ordered. (Shipping free on $50.00 or larger orders). AZ residents add 7% sales tax. Orders shipped within two days.

Author Inquiries Welcome

send order to: **PRICKLY-PEAR SOFTWARE**
2640 N. Conestoga Ave.
Tucson, Arizona 85749
(602) 749-2864

MasterCard VISA

RACKSELLERS

The stores listed below carry **SOFT SECTOR** on a regular basis and may have other products of interest to Sanyo personal computer users. We hope you will patronize those in your area.

ALABAMA
- Birmingham — Command Computer; Computer Engineers Inc.; The Computer Store
- Fayette — Computer Shoppe
- Madison — Madison Books
- Mobile — Mall Tel
- Montgomery — Trade-N-Books

ARIZONA
- Flagstaff — Datasystems
- Phoenix — Apollo Computers; Tri-Tek, Inc.
- Tempe — Books, Etc.; Computer Library

CALIFORNIA
- Folsom — Computers, Etc.
- Hayward — 3E Software & Systems
- Huntington Beach — Hammer Industries
- La Jolla — Affordable Computers
- Lancaster — Desert Computing
- Los Angeles — Computer Masters; OPAMP
- N. Hollywood — Levity Distributors
- Norco — Wiest Custom Studios
- Poway — Creative Computer Corp.
- Riverside — Famis Computers
- Sacramento — Software Centre International
- San Bruno — Home Computing Centers, Inc.
- San Diego — Byte & Floppy Computers; Programs Unlimited
- San Francisco — Aquarian Age Computer Center
- San Jose — Business Computer Mart
- San Luis Obispo — El Corral Bookstore; Paradise Computer Systems
- Santa Maria — Information Systems Unlimited
- Santa Rosa — Sawyer's News, Inc.
- Sherman Oaks — Data Systems West
- Stockton — Hardings Way News
- Upland — Computer Haven; Friendly Computers
- Vista — The Computer Place
- Walnut Creek — ECX Computer Co.

COLORADO
- Aurora — Devi Computers
- Colorado Springs — The Computer Farm
- Englewood — Whole Life Distributors
- Security — Video Communications & Computers, Inc.

CONNECTICUT
- Manchester — Computer Training Institute
- Meriden — Total Computers
- Stamford — Norman Block Associates
- Wallingford — Comstat

DELAWARE
- Wilmington — Nor-Mar — The Smoke Shop

FLORIDA
- Altamonte Springs — Micro's Etc.
- Boca Raton — Software, Software, Inc.
- Brooksville — All American Electronics
- Clearwater — Software City; Southern Micro Computer Co.
- Ft. Lauderdale — Computer Ease
- Gainesville — Computerized Applications
- Jacksonville — AA Computer Exchange; Florida Computer Resources
- Longwood — Electronic Specialty Products
- Melbourne — City News Stand; B & B Office Equipment; Micro's, Etc.
- Merritt Island — Compuworld; Micro's, Etc.
- Miami — Allstate Business Center; Computers, Computers, Computers; Computer Image; Programs Unlimited
- Orlando — Advanced Business Systems, Inc.; Rainbow Computer Center
- Ormond Beach — Micro's Etc.
- Panama City — Computer Systems Group; Computer Town
- Point Ornge — Micro's Etc.
- Port Rickey — Computer Trends
- Sanibel Island — Sanibel Audio
- Sarasota — Family Computers
- Seminole — Home Computer Discount, Inc.
- Shalimer — Discount Discs
- St. Petersburg — Software Connection
- Stuart — Computer Market Place
- Tampa — Computer Dimensions; Personal Computer Center; Southern Micro Computer Co.

GEORGIA
- Augusta — Ram, Inc.
- Atlanta — The 64 Store; Guild News Agency; Southern Computer
- Columbus — Alboes Computers
- Decatur — Corr-Puters
- Lithonia — Certified, Inc.

IDAHO
- Boise — Western Computer & Office Supplies
- Moscow — H & S Computer Supplies
- Nampa — Canyon Computers & Communications

ILLINOIS
- Belleville — Software Or Systems
- Bloomington — J. Powell & Associates
- Chicago — Central Business Machines; Hyde Park Computers
- Rockford — Learn-A-Bit
- Salem — Salem Computer Systems
- Urbana — Sunnycrest Business Systems

INDIANA
- Ft. Wayne — Bytrex; Digital Perspectives
- Indianapolis — Accolade Computer Design; A Computer Store
- Kokomo — Toso Computer Shop
- Marion — Computer Corner
- West Lafayette — Von's Computers

KANSAS
- Lawrence — Computer Outlet
- Salina — Computer Connection
- Wichita — Computer Education Assoc.

KENTUCKY
- Cynthiana — Accounting Data Corp
- Louisville — Software Source
- Owensboro — Computer Stall
- Prospect — Falsoft, Inc.
- Radcliff — Bluebird Computer

LOUISIANA
- Gretna — The Computer Supply Store
- Opelousas — Sound Electronics
- Sulphur — Home Computer & Software
- Thibodaux — Great Southern Computer Systems

MAINE
- Bangor — Downeast Specialty Co.

MARYLAND
- Bethesda — Technology Equipment Center
- Camp Springs — Compudeo
- Millersville — Comp-U-Type
- Oakland — Englanders Pharmacy
- Pasadena — RW Electronics Computer Center
- Riverdale — Custom Computers
- Savage — D & H Distributing Co.
- Silver Springs — A-OK Computers
- Towsend — Greetings & Readings
- Waldorf — Waldorf Computer
- Wheaton — Micro Computer Co.

MASSACHUSETTS
- Danvers — Microcon Computers & Softwarecenter
- Waltham — Computer Magic
- Woburn — Microcon Software Centers

MICHIGAN
- Allen Park — Galaxy Computers
- Ann Arbor — University Cellar
- Berkley — Family Computers
- Charlotte — Computer Options
- Dearborn — Alpha-K Computer Co.; DSL
- Farmington — ComputerTowne
- Fenton — Computer Control Systems; Petry Products
- Fremont — POS Electronic Business Systems
- Grand Rapids — Bursma Electronic Dist. Co.; Programs Unlimited
- Lapeer — Computer Corner
- Mt. Clemens — Business Computer Systems; Computer Plus, Inc.; Key Book Shop
- Muskegon — 8-Bit Corner
- Novi — Michigan Software
- Owosso — C/C Computer Systems
- Pontiac — MichTron
- Rochester — Rochester Book Center
- Royal Oak — 1-2-3 Compute; New Logic Computers
- Southgate — Popular Computer Centers, Inc.
- Sterling Heights — The Family Room
- Troy — Creative Center
- Union Lake — Small Business Computers, Inc.
- Wyandotte — ComputerTech
- Wyoming — Gerry's Book Co.
- Ypsilanti — Ye Olde Computer Shoppe

MINNESOTA
- Minneapolis — Computer Exercise World

MISSOURI
- Aurora — Southland Electronics
- Columbia — Computer Concepts
- Creve Coeur — Alcor Associates
- Independence — Digital Enterprises, Inc.
- Kansas City — Brands Mart Computers
- Republic — Franklin Computers
- St. Louis — Software Centre

MONTANA
- Billings — PC Center
- Whitehall — Rambyte Computer Institute

NEBRASKA
- Omaha — Computers & Components

NEVADA
- Las Vegas — Computer Magic
- Reno — High-Tek Computer

NEW HAMPSHIRE
- Berlin — E&S Computing
- Laconia — The Systems House

NEW JERSEY
- Lake Hopatcong — Jefferson Computer Center
- Lawrenceville — Microcon Computer & Software
- Ocean City — The Computer & Software Store

NEW MEXICO
- Alamogordo — New Horizons Computer Systems
- Albuquerque — Page One Newsstand; Programs Unlimited; Zia Computers
- Las Cruces — Zia Computers; Las Cruces Computers

NEW YORK
- Amityville — Ross Enterprises
- East Rochester — Foxx Computer Services
- Farmingville — Datascan Computer Systems
- Great Neck — P & T Computers
- Lake Grove — Programs Unlimited
- Plattsburg — Adirondack Computer Supply
- Rochester — Computer Directions; Vixia Computer Center
- Wappingers Falls — Software City

NORTH CAROLINA
- Atlantic Beach — VBS MicroSystems
- Carrboro — Triangle Data Systems
- Cary — News Center in Cary Village
- Chapel Hill — Pascal
- Mt. Airy — Mountain Computers
- Raleigh — Computopia; Crazy Bob's Discount Computers
- Winston-Salem — Discount Computer Sales

NORTH DAKOTA
- Buxton — Systematics
- Riverside — Computer Associates

OHIO
- Ashland — Infopro
- Cambridge — Comtech
- Canal Fulton — Gemstone Computing
- Canton — Micro's Etc.
- Cincinnati — Cincinnati Computer Center; Video Barn
- Columbus — The Book Rack
- Cuyahoga Falls — Friend Chips
- Euclid — Computer Warehouse
- Fairborn — Genesis Micro Systems
- Fairfield — Microwave Magic
- Greenville — Hansbarger's
- Kettering — Electronic Connexion
- Lombard — Complete Computing
- Mafield Heights — Programs Unlimited
- Marion — Marion Computer Center
- Niles — Perfect Computers
- North Olmstead — Softwaire Centre International
- Ravenna — Alpha Computer Services, Inc.
- St. Clairsville — D & K Computer Sales & Service
- Toledo — Computer Gallery; Reitz Electronics

OKLAHOMA
- Oklahoma City — Merit Computers
- Tulsa — Data Station — Tulsa

OREGON
- Beaverton — Creative Computers & Electronics
- Eugene — University of Oregon Bookstore
- Hillsboro — Quest Enterprises, Inc.; Nomies Video Tec
- Salem — Super Soft

PENNSYLVANIA
- Ardmore — Computers Plus
- Butler — Software Corner
- Exton — Software City
- Mt. Penn — Peripherals, Computers & Supplies
- Philadelphia — Some Hole In The Wall
- Phoenixville — Stevens Computer Center
- Pittsburgh — Computer Bug
- Warrington — Computers Here

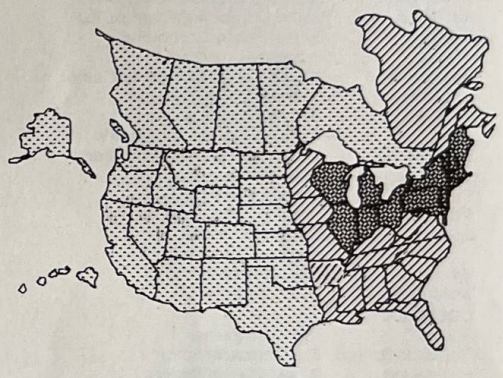
RHODE ISLAND
- Cumberland — Mike's CP & Software

SOUTH CAROLINA	
Charleston Heights	Software Haus
Travelers Rest	Concurrent Technologies Corp.
TENNESSEE	
Knoxville	First Byte Computer Co.
TEXAS	
Austin	Electronics Insight
Carrollton	Videoland
Dallas	ABS Business Products
Houston	Computer King
	Texas Computer Products
San Antonio	Wagner Bros. Computer Store
UTAH	
Logan	Sound Station
Provo	Lloyd's Business Machines
VERMONT	
Rutland	Computer Marketing
VIRGINIA	
Alexandria	Alonso Book & Periodicals
	Custom Computers
Arlington	Micro Flow Co.
Danville	BES, Inc.
Fairfax	Family Computer Center
Falls Church	Soft Cost
Fredericksburg	Salem Computer Center
Gloucester Point	Gloucester Electronics
Hampton	Business Machine World
Norfolk	Micro-Enhancements
Springfield	Fairfax Computer Corp.
Virginia Beach	Beach Business Machines
WASHINGTON	
Bellevue	Commercial Computer Systems
Centralia	Centralia Computer Center
College Place	Discount Computer Supply
Federal Way	Compu-Place
Marysville	Crown Microproducts
	Computer Centers
	Computer World
Renton	Puget Sound Electronics
Seattle	Bits & Chips
	Pioneer Computers
	R&K Enterprises
Spokane	Quality Software
WEST VIRGINIA	
Charleston	Salmon's Diversified Office Services
Morgantown	Computer Closet
WISCONSIN	
Janesville	Emerald Computers
Stevens Point	Mom's Computers
AUSTRALIA:	
SYDNEY	
Kingsford	Paris Radio Electronics
VICTORIA	
Melbourne	Computer Biz
CANADA:	
ALBERTA	
Calgary	Tesserac Computer Systems
	The Computer Shop
Edmonton	CompuSoft
	Computique
	Compu-ware
	Disk and Chip
	Kelly Software Distributors
Grand Prairie	LEW Computers
BRITISH COLUMBIA	
Abbottsford	Clearbrook Computer Centre
Richmond	Computer King
Langley	Mainland Magazine Service
Penticton	Corporate Computers
Port Coquitlam	Compulit
Prince George	Computer King
Surrey	Computer King
	The Computer Dept. of London Drugs
Victoria	Odyssey Computer Services
MANITOBA	
Winnipeg	Micro-Mentor, Inc.
ONTARIO	
Burlington	Burlington Business Systems
Guelph	Neutron Computers, Inc.
Kitchener	Home Computer Centre
London	Town & Country Business Machines
Ottawa	E.T. Wilson Office Equipment LTD.
Peterborough	Computer Support
Scarborough	Scitron
Toronto	Computer Junction
	CP&A
Waterloo	Computer Junction
Windsor	Facts & Figures Computer Service
QUEBEC	
Montreal	Lemond PC
SASKATCHEWAN	
Saskatoon	Memory Lane Computers
ENGLAND	
East Sussex	Molimerx LTD
NEW ZEALAND	
Palmerston North	Viscount Electronics LTD
SWEDEN	
Alvsjo	Woniam, AB
VENEZUELA	
Maracaibo	Byte Computer Center

ADVERTISERS INDEX

We encourage you to patronize our advertisers — all of whom support the Sanyo line of personal computers. We will appreciate your mentioning **SOFT SECTOR** when you contact these firms.

A-OK Computers....71, 73
AA Computer Exchange....68
Artisoft, Inc....54
BGW Systems....26
BMC....87
Binary Tree Technology....29
Block Marketing, Inc....89
Bluewater Software....15
Branham, Bill....50
Business Division, The....30
Chaucer Software....27
Chryson Computer....28
CompuSoft....77
Comp-U-Type....19
Computer Alpha Corp....8
Computer Associates, Inc....80
Computer Creations, Inc....55
Computer Solutions....34
Computer Toolbox, Inc., The....85
Computer Warehouse....3
Crazy Bob's Computer Warehouse....BC
C-Tek....67
Datalog....15
Diversified Computers....68
Federal Hill Software....43
Future Systems....65
Hammer Industries, Inc....65
Harvard Associates....43
ICR FutureSoft....5
James River Group, Inc., The....59
Kyntex Marketing....49
LaPlata Research....76
Lemberger Company, The....89
Level IV Products, Inc....75
M.W.S. Computers....66
MichTron....IFC, 16, 51
Michigan Software Distributors....19
Midwest Micro Peripheral....13
MULTI-TRONIX....89
Olympic Educational Software....11
Owl-Services....74
Pacific Distributors....67
Pacific Systems Limited....50
Peripheral Products Distributing....47
Prickly-Pear Software....92
R & R Computer Development, Inc....68
Rocky Mountain Micro....66
Sanyo....32
Sanyo Canada....9
Scottsdale Systems....7
Softies, The....56
Soft Sector Binders....81
Soft Sector On Disk....81
Software Answers....56
Spectrum Solutions....50
Systems Peripherals Consultants....12
T W Technologies, Inc....46
Tampa Bay Digital....67
Thumper Productions....49
TOP Software....49
True Data....40
U.S. Digital Corporation....IBC
Value House....79
Wagner Brothers....40
Witech....74
Writing Consultants....31, 33



Call:
Jack Garland
Garland Associates, Inc
10 Industrial Park Road
Hingham, MA 02043
(617) 749-5852

Call:
Kate Tucci
Advertising Representative
9529 U.S. Highway 42
P.O. Box 385
Prospect, KY 40059
(502) 228-4492

Call:
Cindy Shackleford
Director, West Coast Office
12110 Meridian South—Suite 8
P.O. Box 73-578
Puyallup, WA 98373-0578
(206) 848-7766

IT PAYS TO INVEST IN HIGH QUALITY SOFTWARE

If you want software that really lives up to its billing, it's wise to consult the professional reviewers. We stress COPYLINK's superiority and how important it is to be prepared (for now and the future) to handle new kinds of communications situations. But don't take our word for it. Listen to those whose business it is to be objective.

Software Source (Australian Sanyo distributor)

"We are quite impressed with COPYLINK and have chosen it over all others we have evaluated."

Computer Shopper

"For all-around power and flexibility, COPYLINK is outstanding... user friendly with clearcut English style commands. Not being forced to go through a tedious menu every time... is something the regular communicator will appreciate."

Dubbing it "The Strongest Link", Microcomputing magazine

"COPYLINK is one of the most powerful data communications packages available at any price. The fact that it can be purchased for less than $100 makes it the best communications value on the market today..."

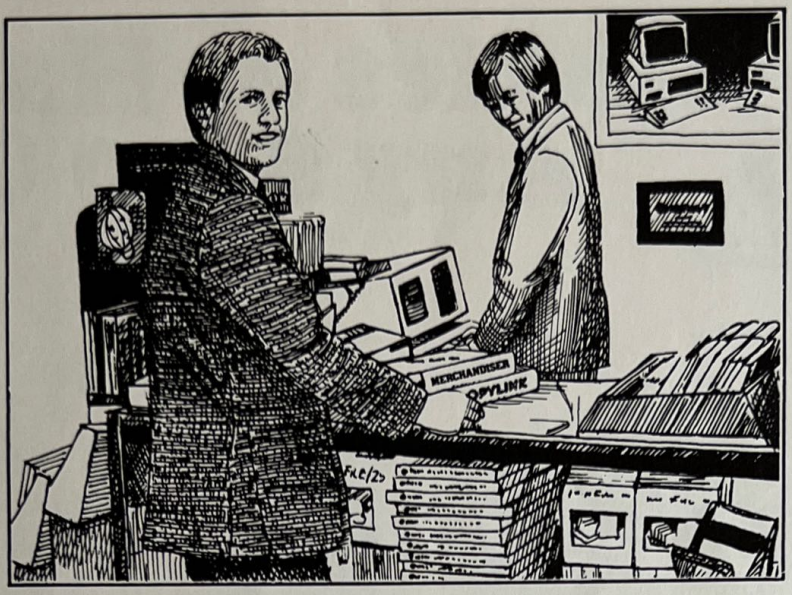
Soft Sector

"The remote (unattended) aspects of COPYLINK may prove to be one of its best features... I chose COPYLINK as my first choice in communications software."

OnLine Today magazine

"The (COPYLINK) program is excellent..."

COPYLINK Regular is still the most sophisticated program of its type, but it is also extremely fast and easy to use. Just "ADD" a name (like "COMPUSERVE") to the unlimited directory of phone numbers and "CALL COMPUSERVE". That's all you have to do to get online. What could be faster and easier? No tiresome menus to muck through long after you stopped needing them. Yet "HELP" is always there. COPYLINK runs on over 50 MSDOS and CP/M systems allowing the most reliable file transfers between incompatible systems, including the Sanyo 550 and 775 as well as many CP/M machines (incl. MBC 1150 and 1250) – with any kind of 300 or 1200 baud modem. Comes with a free Dow Jones subscription which is worth $125 by itself. All this for only... $99.95



NOW INTRODUCING COPYLINK-PLUS THE FIRST OF ITS KIND

Like COPYLINK, the new COPYLINK-PLUS does all the things a communications program should do: auto-dialing (and redialing), easy uploading and downloading, automatic logons, etc. Furthermore, it's just as flexible as COPYLINK to handle any communications situation that may come up – to reconfigure parameters on the fly, handle a full disk situation without losing data, automatically save downloaded files and disconnect the line, remote unattended communications, etc. But COPYLINK-PLUS adds FULL VT100 emulation using the full range of function keys (32 which you can redefine), logon procedures that can be programmed to wait for a specific signal or condition, the ability to set up delayed dialing sequences, etc.

COPYLINK-PLUS is the first of its kind anywhere. Completely programmable, it can even be called into operation by another program and return to that program when its task is finished. COPYLINK-PLUS is actually an operating system in itself, an operating system geared to communications tasks. Using the simple BASIC-like front-end language, you can design communications exactly to your own liking. Or you can use it just like a VT100 or ADM3A without any modification. There's nothing like it.

Other high quality products

MERCHANDISER is an excellent Point of Sale/Inventory Control/Mailing List program for computer dealers and other retail stores. For MSDOS, this compiled dBase II program is a fast menu-driven package integrating Counter Sales, Inventory Management, Receiving, Credit/Returns, Customer Mailing Lists and a Vendor Phone Directory. Muffler shops, bicycle stores, dress shops, stereo stores, you name it — a wide vertical market that dealers understand. Available on consignment to dealers. $595

CheckMaster is a checkbook/accounts payable program which is very fast and easy to use. Professional enough for any business yet simple enough for home use, CheckMaster keeps track and reports for all vendors and G/L accounts automatically. Prints checks too. CheckMaster is an exceptional basic accounting tool. $129.95

Direct Mail Manager is a complete name/address list handler which holds 65,000 records. It allows you to group your clients, prospects, friends, and relatives into categories for immediate retrieval. Also prints labels in a one-up or cheshire format. $49.95

PREP is a home accounting program that makes it simple to keep track of expenses. A first-time user will have absolutely no difficulty. PREP handles up to 250 expense categories which you can easily define (and redefine). PREP quickly reconciles monthly bank statements, keeps track of what you're spending in different areas, credit and cash transactions, compares month-to-month, spending patterns etc. Totally flexible (you can even change the balance). Demos nicely. $59.95

CPeMulator makes your MSDOS or PCDOS computer (including MBC 550/555) act like a CP/M-80 machine so you can actually run CP/M software without any trouble or additional hardware. $99.95

CALL PATRICIA ON THE "OREGON DICKER HOTLINE" UNTIL 10PM EST – 503/654-0668

Quality Software for Entrepreneurs

U.S. DIGITAL™

U.S. Digital Corporation ☆ 5687 S.E. International Way ☆ Portland, Oregon 97222 ☆ (503) 654-0668 Telex 888521

the Nation's Low Price Leader

CASH PRICES ONLY

FREE Crazy Bob's T-Shirt or Hat With Any $100 Order

White With Red Crazy Bob Logo - Specify Size

Sanyo 775

SANYO 775 PORTABLE — 256K, Built in 9" RGB Color Screen, 2 DS/DD Drives, 2 Open Slots, Parallel Port, Software, 36 Lbs	1895.00
CHIPS 9 Chips for 775 or IBM	18.00
HAYES 1200B 1200 Baud Board Modem	349.00
QUADRAM EXPANDED QUADBOARD (0K) — Clock Calendar, Serial Port, Game Port, Parallel Port, Memory Expansion Up To 384K, No Memory Installed	249.00
AST 6-PAC (64K) — 64K Installed, Clock Calendar, Serial Port, Parallel Port, Memory Expansion Up To 384K	275.00
FLIGHT SIMULATOR	34.95
ANCIENT ART OF WAR	34.95
GATO	29.95

Sanyo 555

SANYO MBC-555-2 — 16 Bit, 128K, 2-360K Disk Drives, MS-DOS, Wordstar, CalcStar, Easywriter, MailMerge, SpellStar and Sanyo Basic	995.00
SANYO VIDEO BOARD — Run Lotus 1-2-3 on 550 Series, GW Basic, DOS 2.11	159.95
SERIAL PORT — For 550 Series Computers (Limited Supply)	49.95
MEMORY UPGRADE — 64K - 8 Chips - For 550 Series	16.00
HAYES 1200 300/1200 Baud Modem	399.00
KEYBOARD EXTENSION CABLES — For Sanyo or IBM - 12 Foot Long	7.99

Monitors

PRINCETON GRAPHICS HX-12	459.00
TAXAN 425 Hi-Res RGB Monitor	469.00
TAXAN 410 WITH CABLE) — 13" RGB, Hi-Res Color, Specify Sanyo or IBM Cable	379.00
AMDEK 300 12" Green	139.00
AMDEK 300A 12" Amber	139.00

Printers

OKIDATA 182 — 120 CPS, Graphics, Friction or Tractor Feed	259.95
STAR MICRONICS SG-10 — 120 CPS, Near Letter Quality, Friction or Tractor Feed	239.95
TOSHIBA 1340 — Best Looking Dot Matrix in Near Letter Quality Mode	699.00
EPSON LX-80 — 100 CPS, Dual Mode, NLQ, Friction Feed	299.00
PANASONIC KX-P1091 — 120 CPS, NLQ with Tractor Feed, 1K Buffer	299.00
OKIDATA ML84P 200 CPS, Dual Mode	685.00
OKIDATA ML92P 160 CPS, NLQ	375.00

Crazy Bob's DS/DD Disks — $1.25 Each

Price Per Disk in Crazy Bob's Famous 25 Pack – First Quality

Lifetime Guarantee

VERBATIM 10 DS/DD	29.95
DYSAN 10 DS/DD	29.95

Visit our Raleigh Store

919-878-3704

4200 Lake Ridge Dr. - Raleigh, N.C. 27609

Crazy Bob's Discount Computers

404 451-2030

3790 GREEN INDUSTRIAL WAY, ATLANTA, GA 30341

PURCHASING AGENTS CONTACT OUR CORPORATE SALES DIVISION

MasterCard VISA

Availability and Prices subject to change without notice. Prices quoted are cash prices and do not include the cost of freight. All returned items must have a return authorization number (RMA) and are subject to a 15% restocking fee.